

## CHAPTER 4

### POINT AND NONPOINT SOURCE CHARACTERIZATION OF THE UPPER ELK RIVER WATERSHED

#### 4.1. Background.

#### 4.2. Characterization of HUC-10 Subwatersheds

- 4.2.A. 0603000301 (Elk River)
- 4.2.B. 0603000302 (Elk River)
- 4.2.C. 0603000303 (Elk River)
- 4.2.D. 0603000304 (Boiling Fork Creek)
- 4.2.E. 0603000305 (Elk River)
- 4.2.F. 0603000306 (Beans Creek)
- 4.2.G. 0603000307 (Mulberry Creek)
- 4.2.H. 0603000308 (Cane Creek)
- 4.2.I. 0603000309 (Elk River)

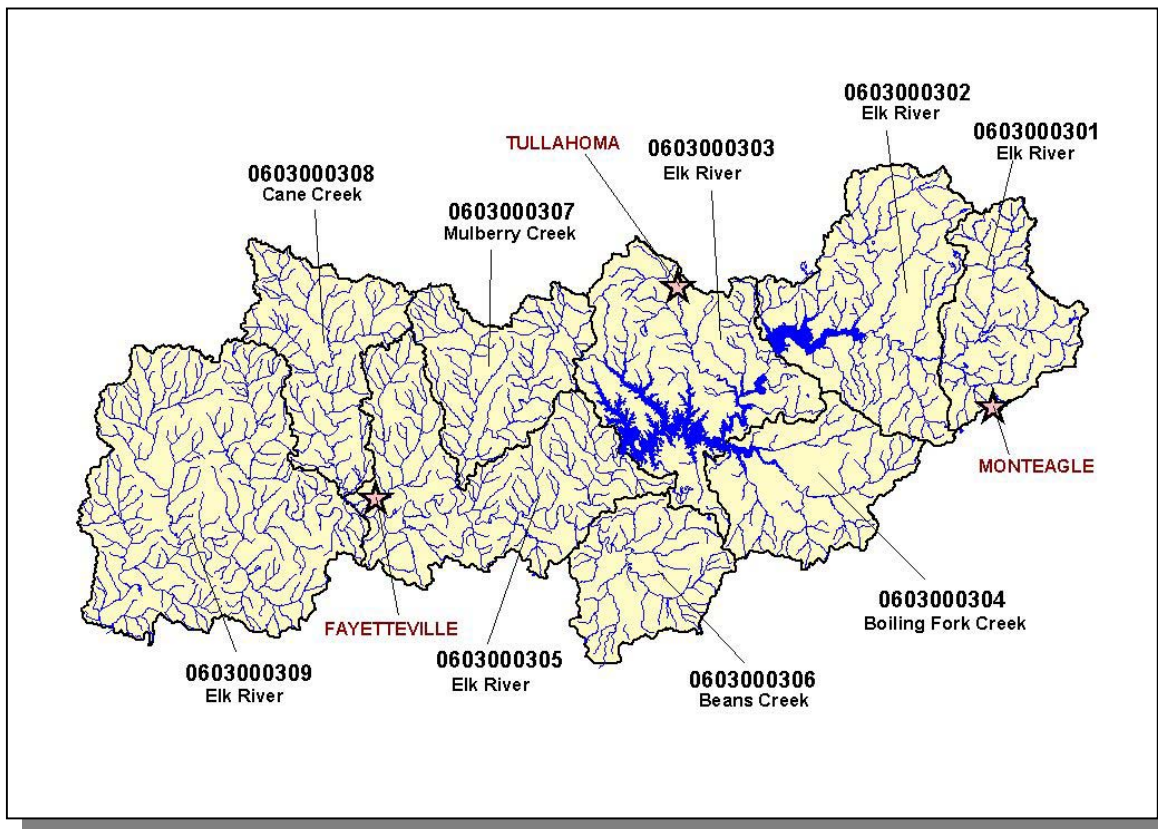
**4.1. BACKGROUND.** This chapter is organized by HUC-10 subwatershed, and the description of each subwatershed is divided into four parts:

- i. General description of the subwatershed
- ii. Description of point source contributions
  - ii.a. Description of facilities discharging to water bodies listed on the 1998 303(d) list
- iii. Description of nonpoint source contributions

The Upper Elk River Watershed (HUC 06030003) has been delineated into nine HUC 10-digit subwatersheds.

Information for this chapter was obtained from databases maintained by the Division of Water Pollution Control or provided in the WCS (Watershed Characterization System) data set. The WCS used was version 1.1 beta (developed by Tetra Tech, Inc for EPA Region 4) released in 2000.

WCS integrates with ArcView® v3.2 and Spatial Analyst® v1.1 to analyze user-delineated (sub)watersheds based on hydrologically connected water bodies. Reports are generated by integrating WCS with Microsoft® Word. Land Use/Land Cover information from 1992 MRLC (Multi-Resolution Land Cover) data are calculated based on the proportion of county-based land use/land cover in user-delineated (sub)watersheds. Nonpoint source data in WCS are based on agricultural census data collected 1992–1998; nonpoint source data were reviewed by Tennessee NRCS staff.



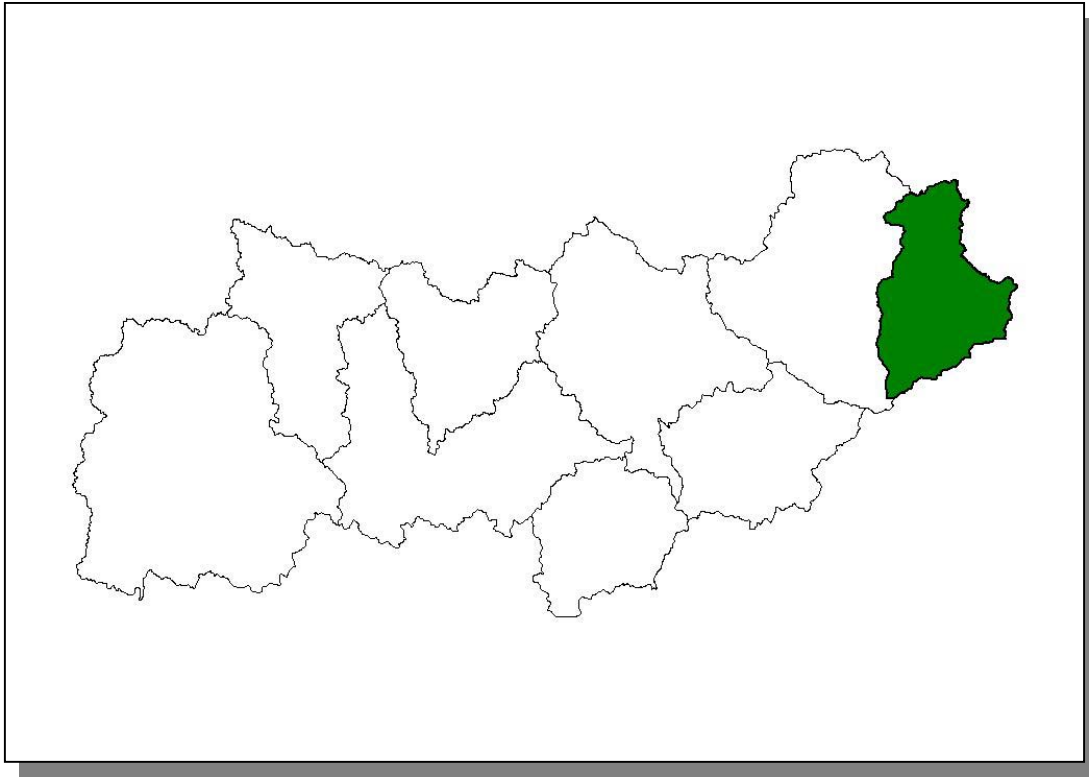
**Figure 4-1. The Upper Elk River Watershed is Composed of Nine USGS-Delineated Subwatersheds (10-Digit Subwatersheds).** Locations of Fayetteville, Monteagle, and Tullahoma are shown for reference.

**4.2. CHARACTERIZATION OF HUC-10 SUBWATERSHEDS.** The Watershed Characterization System (WCS) software and data sets provided by EPA Region IV were used to characterize each subwatershed in the Hiwassee River Watershed.

HUC-10	HUC-12
0603000301	060300030101 (Elk River)
	060300030102 (Dry Creek)
	060300030103 (Elk River)
0603000302	060300030201 (Woods Reservoir)
	060300030202 (Betsy Willis Creek)
	060300030203 (Mud Creek)
	060300030204 (Beans Creek)
	060300030205 (Bradley Creek)
0603000303	060300030301 (Tims Ford Reservoir)
	060300030302 (Spring Creek)
	060300030303 (Hessey Branch)
	060300030304 (Taylor Creek)
	060300030305 (Rock Creek)
	060300030306 (Little Hurricane Creek)
	060300030307 (Owl Hollow Creek)
	060300030308 (Hurricane Creek)
0603000304	060300030401 (Boiling Fork Creek)
	060300030402 (Norwood Creek)
	060300030403 (Dry Creek)
0603000305	060300030501 (Elk River)
	060300030502 (Murrell Creek)
	060300030503 (Farris Creek)
	060300030504 (Elk River)
	060300030505 (Elk River)
	060300030506 (Norris Creek)
0603000306	060300030601 (Upper Beans Creek)
	060300030602 (Lower Beans Creek)
0603000307	060300030701 (East Fork Mulberry Creek)
	060300030702 (West Fork Mulberry Creek)
0603000308	060300030801 (Upper Cane Creek)
	060300030802 (Lower Cane Creek)
0603000309	060300030901 (Elk River)
	060300030902 (Swan Creek)
	060300030903 (Elk River)
	060300030904 (Bradshaw Creek)
	060300030905 (Elk River)

**Table 4-1. HUC-12 Drainage Areas are Nested Within HUC-10 Drainages.** NRCS worked with USGS to delineate the HUC-10 and HUC-12 drainage boundaries.

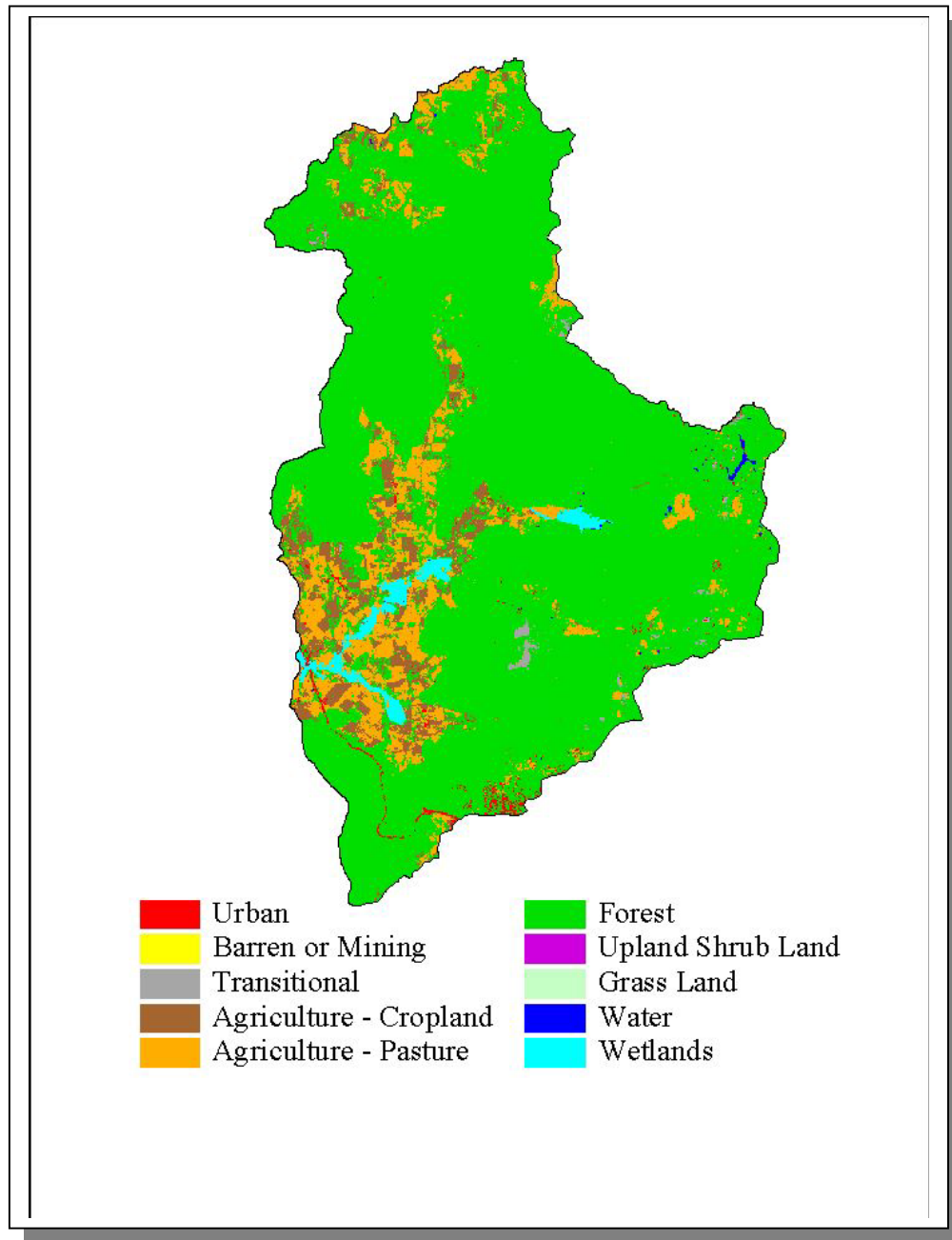
**4.2.A. 0603000301.**



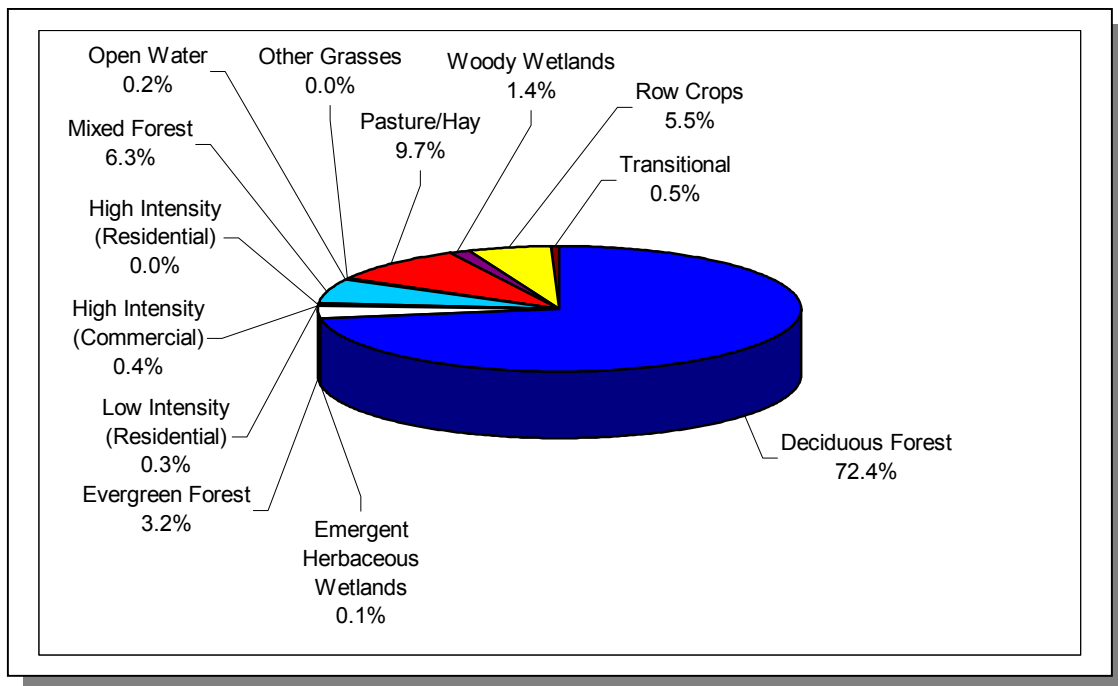
**Figure 4-2. Location of Subwatershed 0603000301.** All Upper Elk HUC-10 subwatershed boundaries are shown for reference.



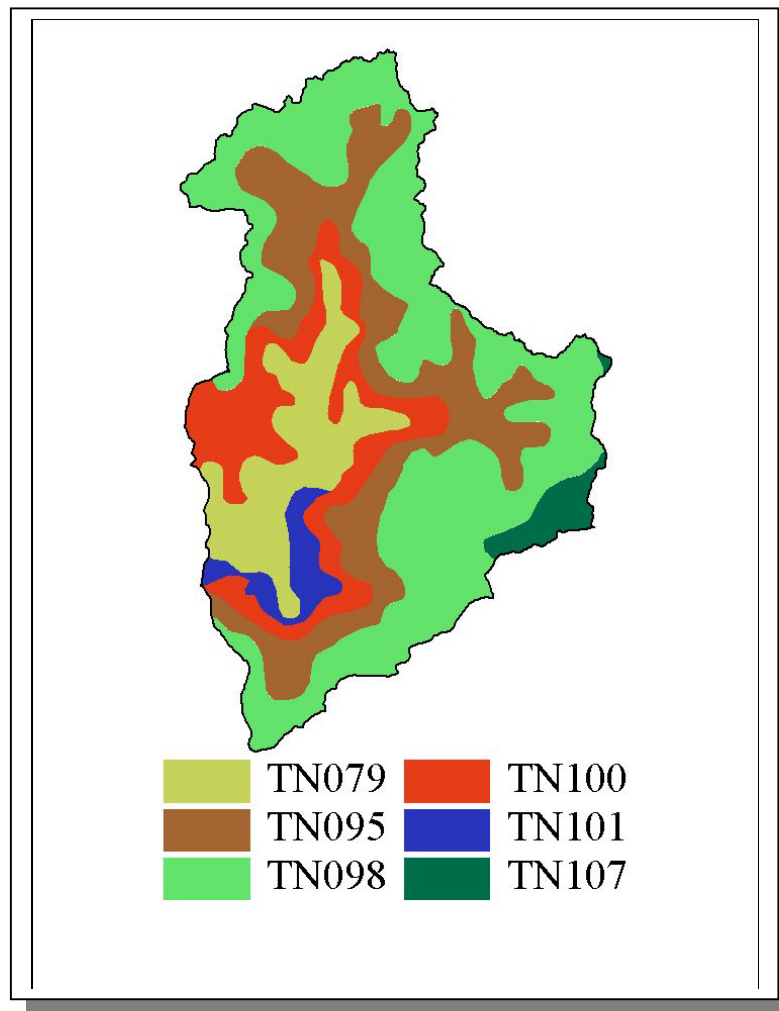
**4.2.A.i. General Description.**



**Figure 4-3. Illustration of Land Use Distribution in Subwatershed 0603000301.**



**Figure 4-4. Land Use Distribution in Subwatershed 0603000301.** More information is provided in Upper Elk River-Appendix IV.



**Figure 4-5. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0603000301.**

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN079	8.00	C	1.30	5.66	Silty Loam	0.35
TN095	0.00	B	2.35	5.12	Loam	0.31
TN098	1.00	C	3.98	4.82	Loam	0.32
TN100	0.00	B	1.14	3.35	Silty Loam	0.21
TN101	0.00	B	1.71	5.39	Loam	0.35
TN107	1.00	C	6.34	4.84	Loam	0.28

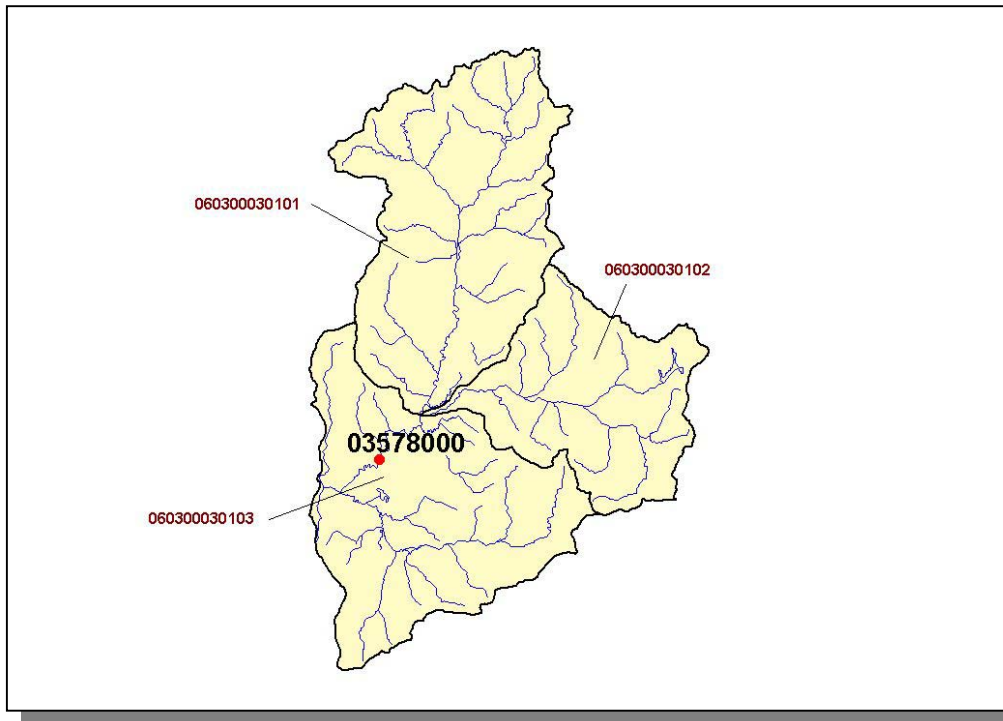
**Table 4-2. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0603000301.** More details are provided in Upper Elk-Appendix IV.

County	COUNTY POPULATION		Portion of Watershed (%)	ESTIMATED POPULATION IN WATERSHED		PERCENT CHANGE
	1990	1997 Est.		1990	1997	
Coffee	40,339	45,347	0.16	63	71	12.7
Franklin	34,725	37,152	0.12	41	44	7.3
Grundy	13,362	14,012	24.53	3,277	3,437	4.9
Marion	24,860	26,674	0.16	40	42	5.0
<b>Totals</b>	<b>113,286</b>	<b>123,185</b>		<b>3,421</b>	<b>3,594</b>	<b>5.1</b>

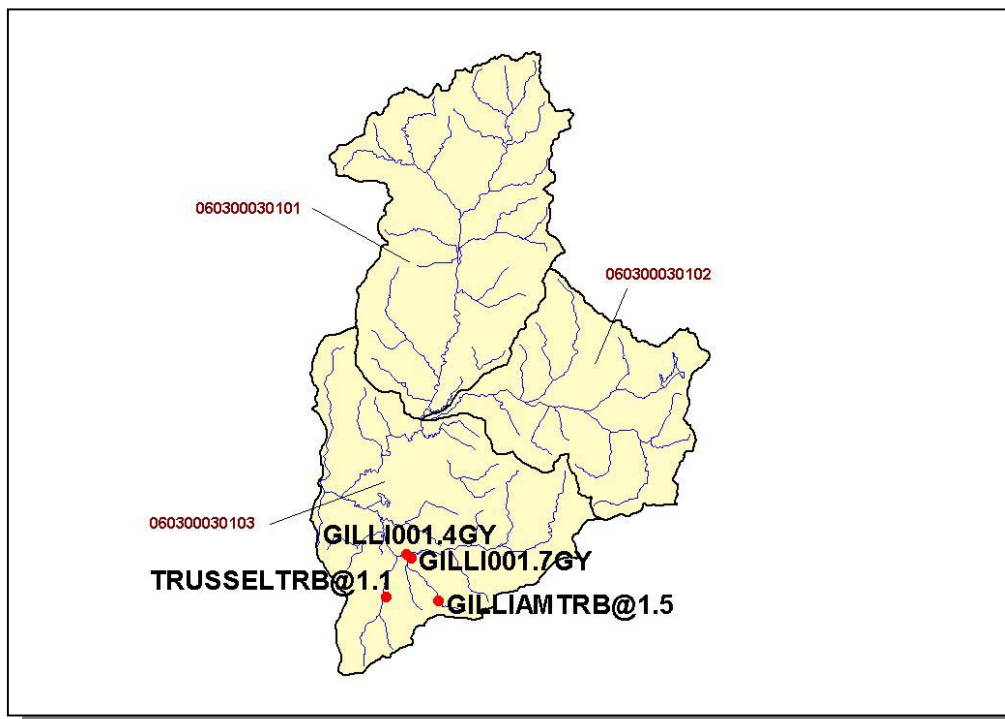
*Table 4-3. Population Estimates in Subwatershed 0603000301.*

Populated Place	County	Population	NUMBER OF HOUSING UNITS			
			Total	Public Sewer	Septic Tank	Other
Coalmont	Grundy	857	300	4	268	28
Monteagle	Marion	1,187	453	258	191	4
Tracy City	Grundy	1,512	660	43	603	14
<b>Total</b>		<b>3,556</b>	<b>1,413</b>	<b>305</b>	<b>1,062</b>	<b>46</b>

*Table 4-4. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 0603000301.*

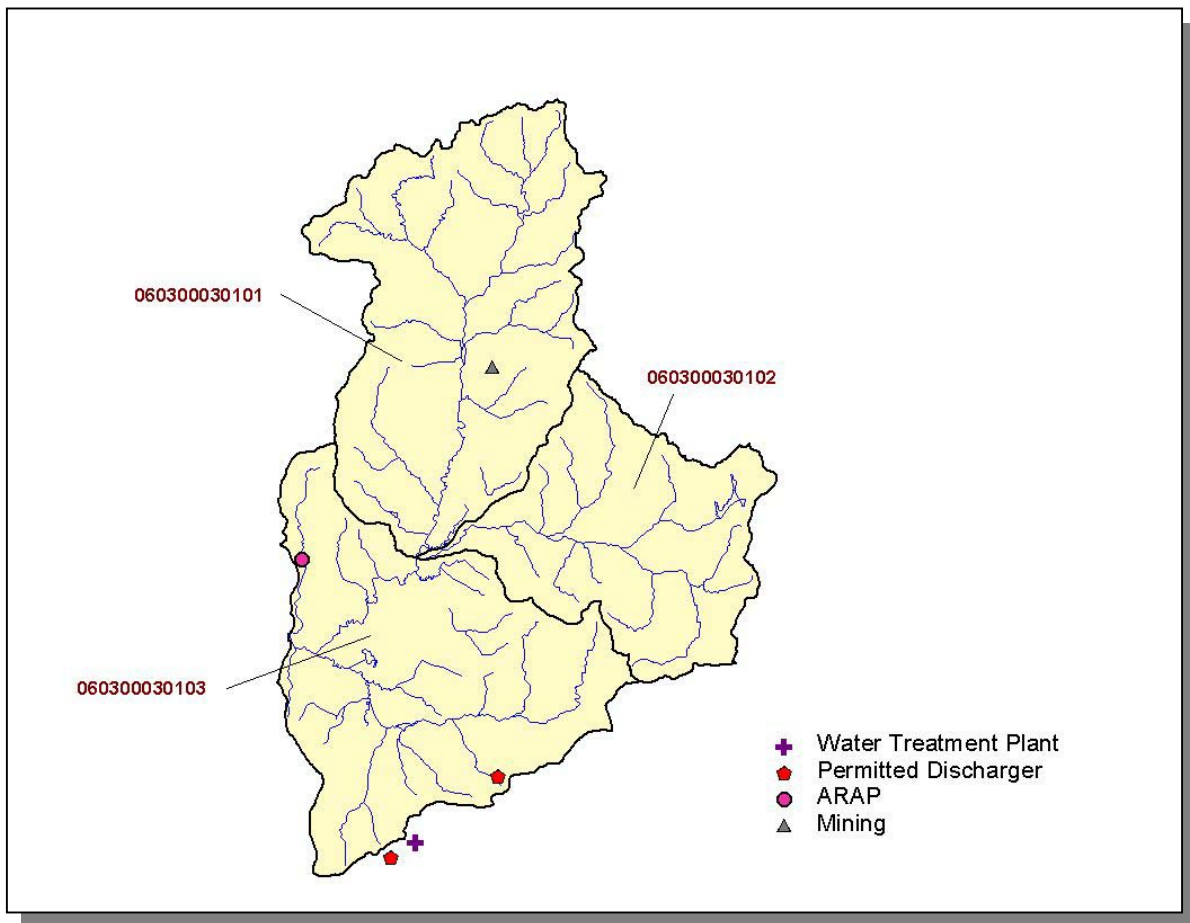


**Figure 4-6. Location of Historical Streamflow Data Collection Sites in Subwatershed 0603000301.** Subwatershed 060300030101, 060300030102, and 060300030103 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.

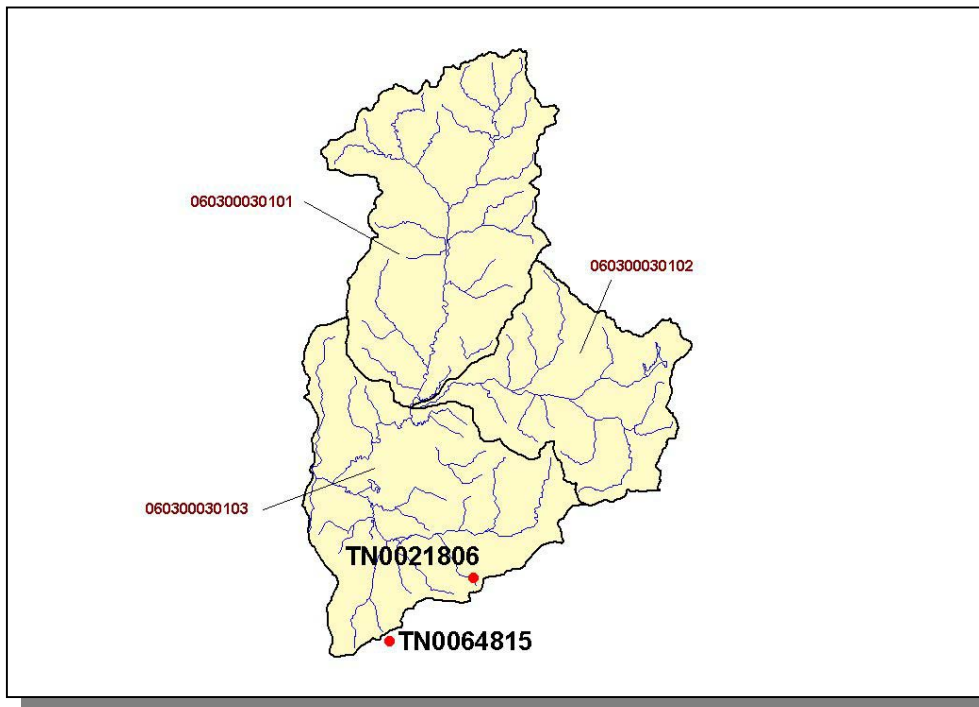


**Figure 4-7. Location of STORET Monitoring Sites in Subwatershed 0603000301.** Subwatershed 060300030101, 060300030102, and 060300030103 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.

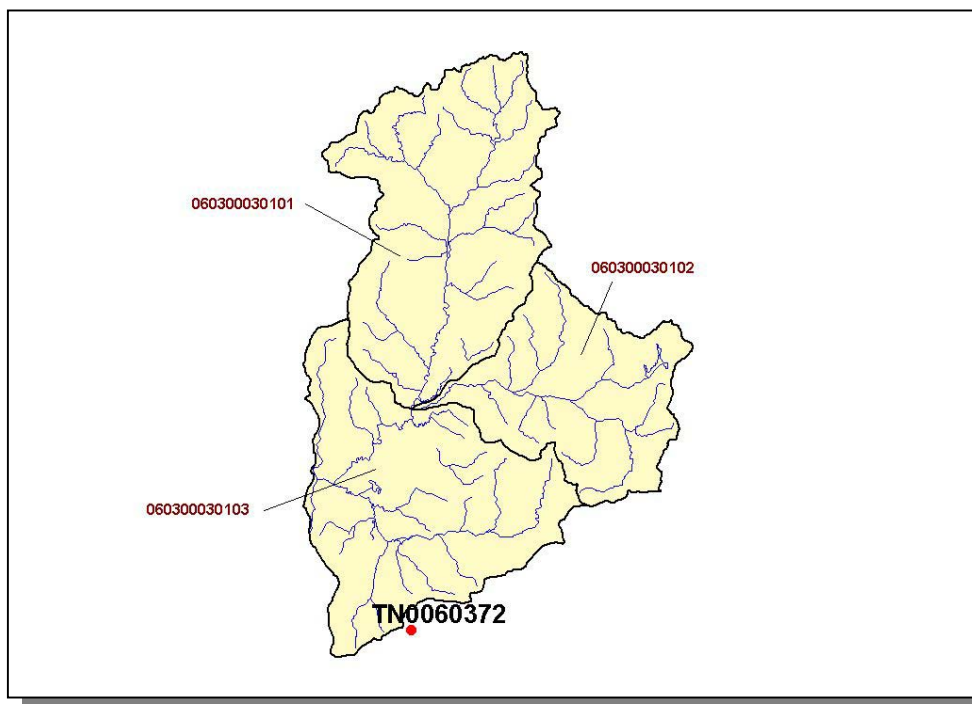
4.2.A.ii. Point Source Contributions.



**Figure 4-8. Location of Active Point Source Facilities in Subwatershed 0603000301.** Subwatershed 060300030101, 060300030102, and 060300030103 boundaries are shown for reference. More information is provided in the following charts.

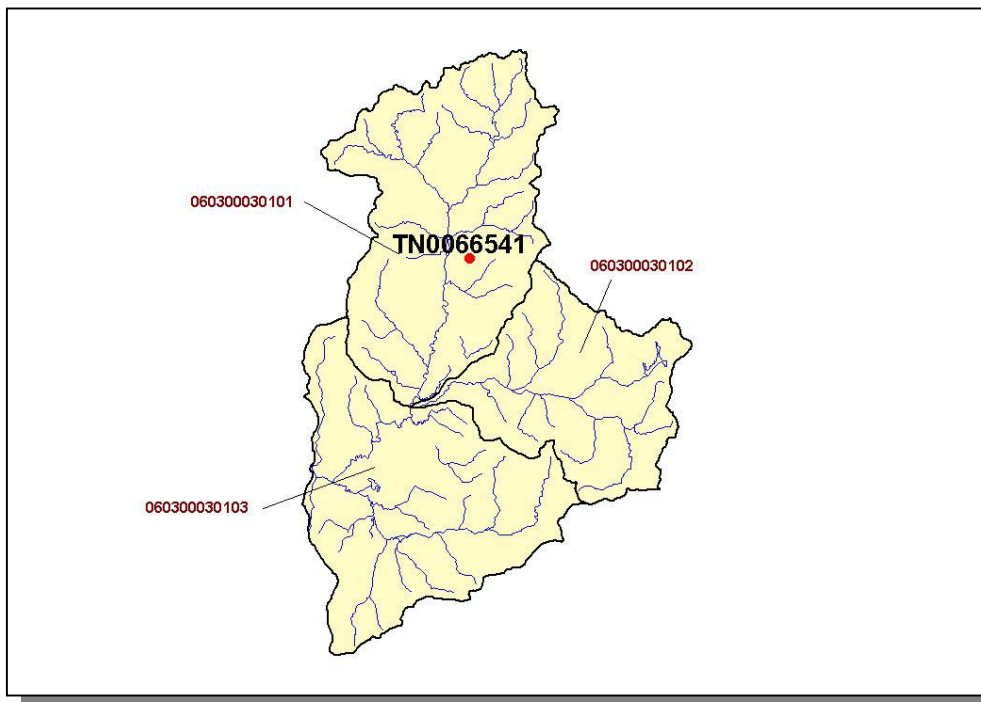


**Figure 4-9. Location of Active Point Source Facilities in Subwatershed 0603000301.** Subwatershed 060300030101, 060300030102, and 060300030103 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.

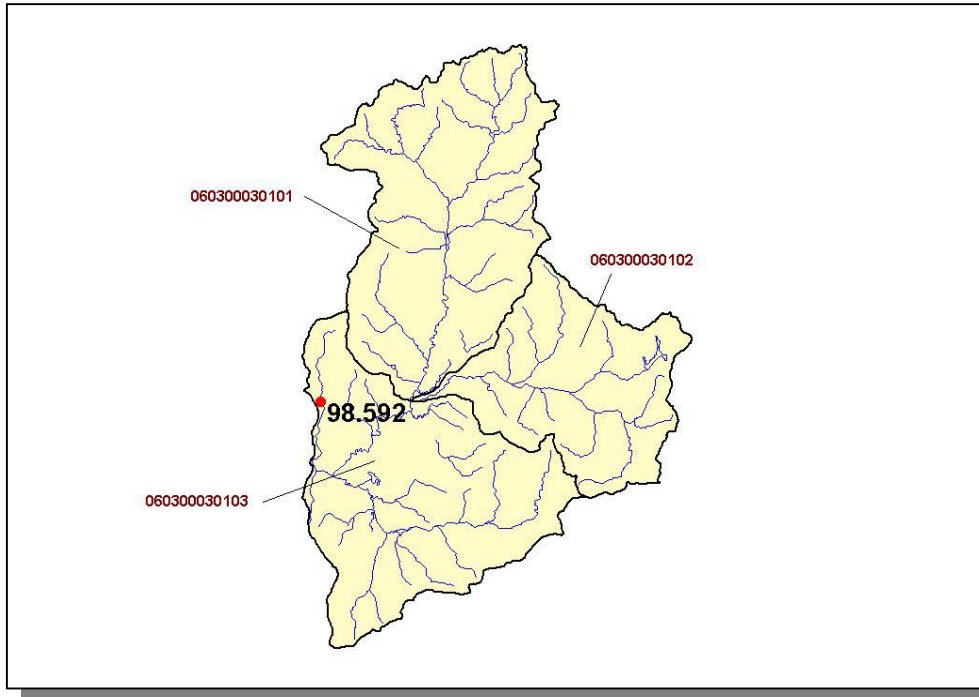


**Figure 4-10. Location of Water Treatment Plant Sites in Subwatershed 0603000301.** Subwatershed 060300030101, 060300030102, and 060300030103 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.





**Figure 4-11. Location of Active Mining Sites in Subwatershed 0603000301.** Subwatershed 060300030101, 060300030102, and 060300030103 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.



**Figure 4-12. Location of ARAP Sites (Individual Permits) in Subwatershed 0603000301.** Subwatershed 060300030101, 060300030102, and 060300030103 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.

**4.2.A.iii. Nonpoint Source Contributions.**

<b>LIVESTOCK (COUNTS)</b>						
Beef Cow	Cattle	Milk Cow	Chickens	Chickens Sold	Hogs	Sheep
1,367	3,195	193	6	5,325,369	725	0

**Table 4-5. Summary of Livestock Count Estimates in Subwatershed 0603000301.** According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

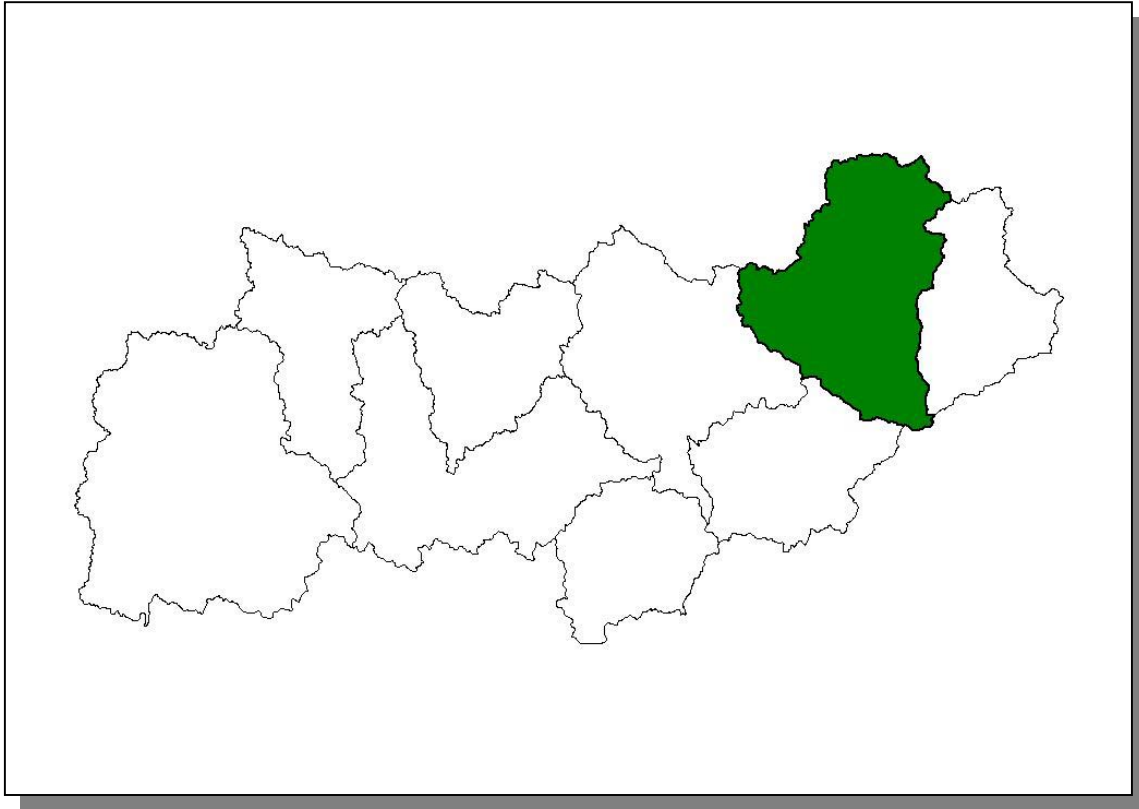
County	<b>INVENTORY</b>		<b>REMOVAL RATE</b>	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Coffee	114.4	114.2	2.8	12.7
Franklin	183.4	183.0	6.0	28.7
Grundy	174.5	165.9	5.6	17.7
<b>Totals</b>	<b>472.3</b>	<b>463.1</b>	<b>14.4</b>	<b>59.1</b>

**Table 4-6. Forest Acreage and Annual Removal Rates (1987-1994) in Subwatershed 0603000301.**

<b>CROPS</b>	<b>TONS/ACRE/YEAR</b>
Corn (Row Crops)	5.14
Soybeans (Row Crops)	4.73
Cotton (Row Crops)	4.03
Grass (Hayland)	0.39
Legume (Hayland)	1.64
Legume/Grass (Hayland)	0.19
Grass (Pastureland)	0.79
Grass, Forbs, Legumes (Mixed Pasture)	0.36
Forest Land (Grazed)	0.00
Forest Land (Not Grazed)	0.00
Conservation Reserve Program Land	0.11
Wheat (Close Grown Cropland)	9.69
All Other Close Grown Cropland	5.82
Other Vegetable and Truck Crops	5.99
Other (Horticultural)	4.58
Nonagricultural Land Use	0.00
Farmsteads and Ranch Headquarters	0.28
Other Cropland (Not Planted)	4.35

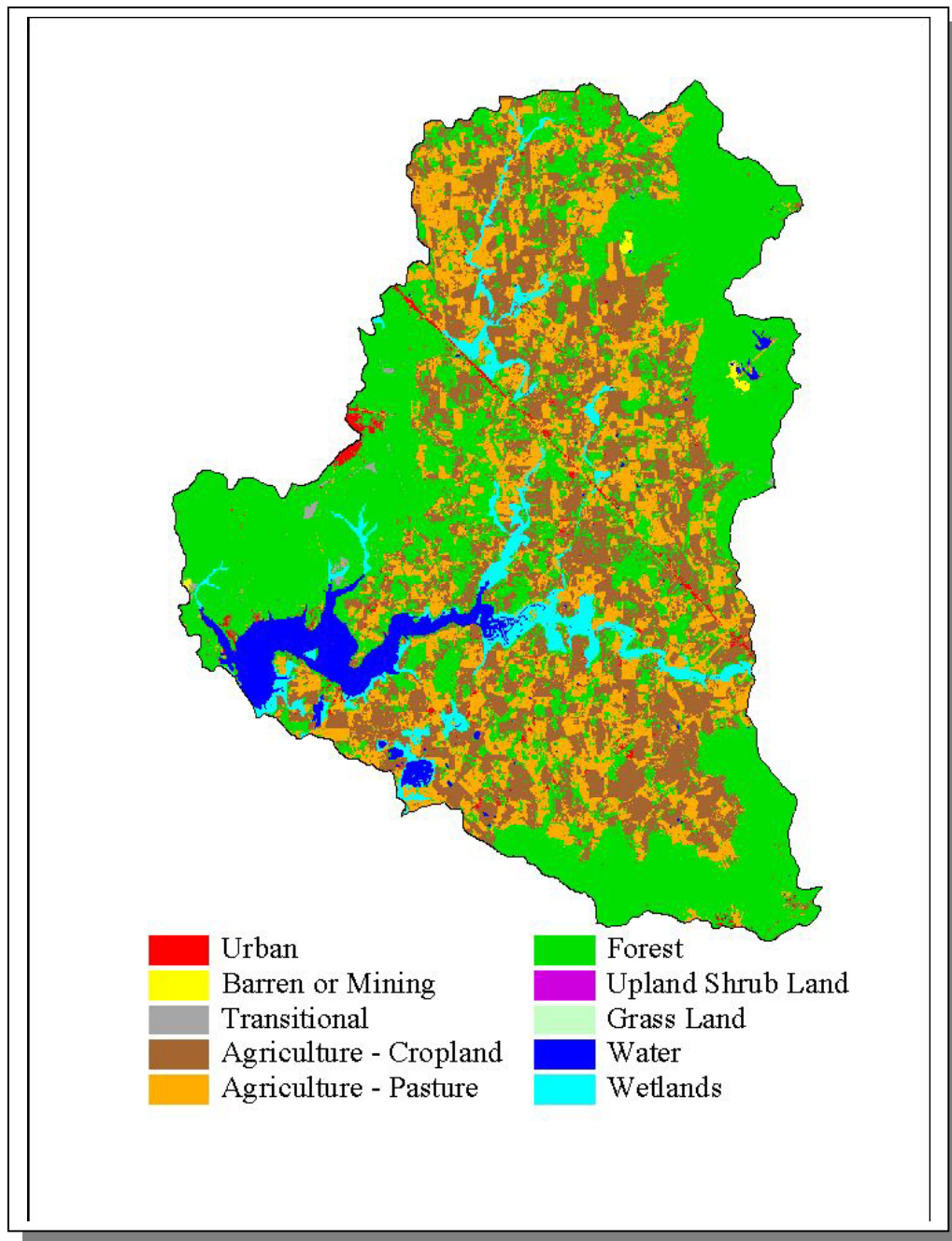
**Table 4-7. Annual Estimated Total Soil Loss in Subwatershed 0603000301.**

**4.2.B. 0603000302.**

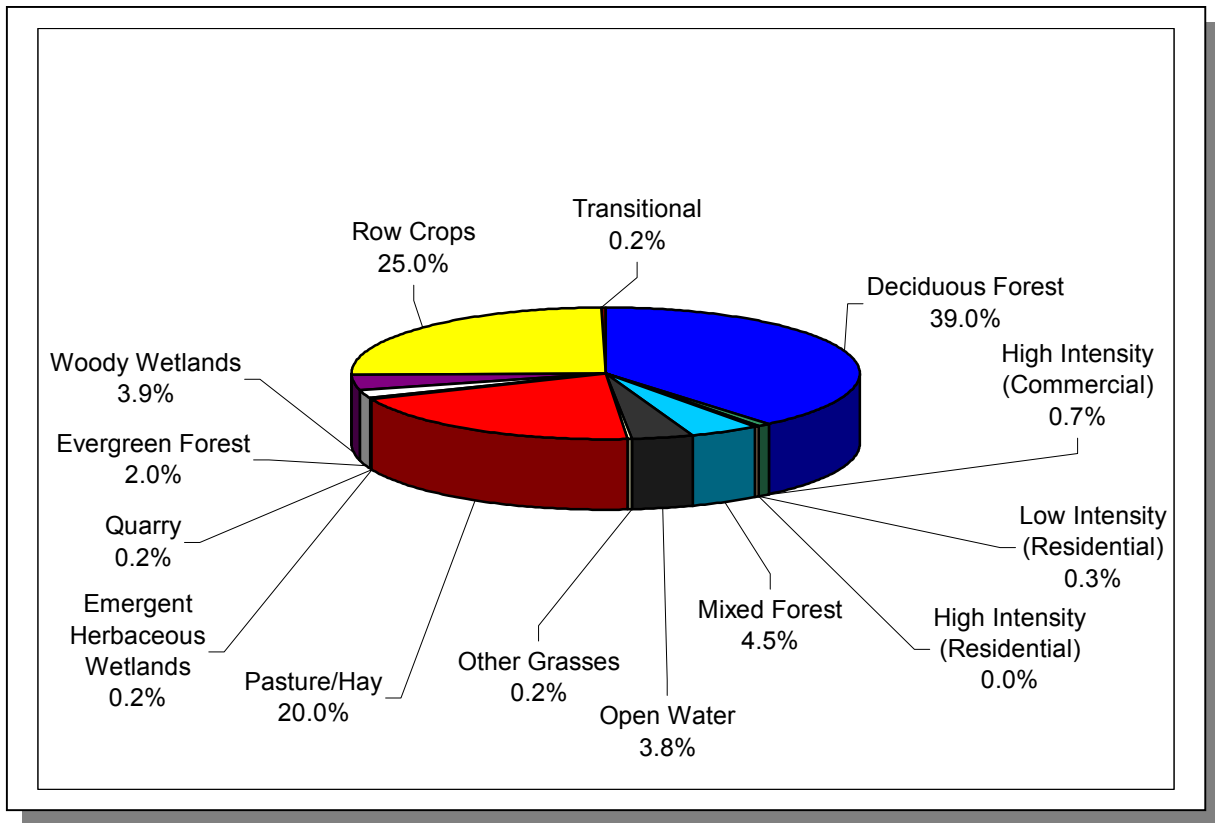


**Figure 4-13. Location of Subwatershed 0603000302.** All Upper Elk HUC-10 subwatershed boundaries are shown for reference.

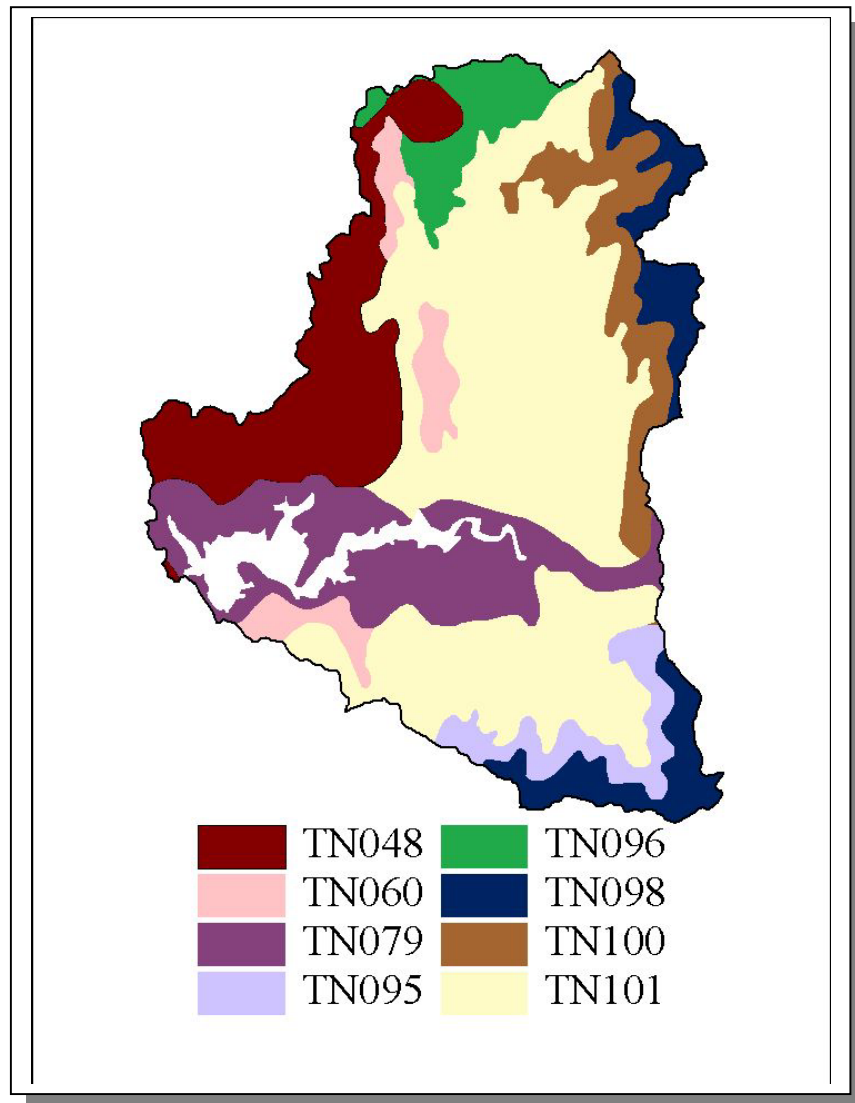
**4.2.B.i.** General Description.



**Figure 4-14. Illustration of Land Use Distribution in Subwatershed 0603000302.**



**Figure 4-15. Land Use Distribution in Subwatershed 0603000302.** More information is provided in Upper Elk-Appendix IV.



**Figure 4-16. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0603000302.**

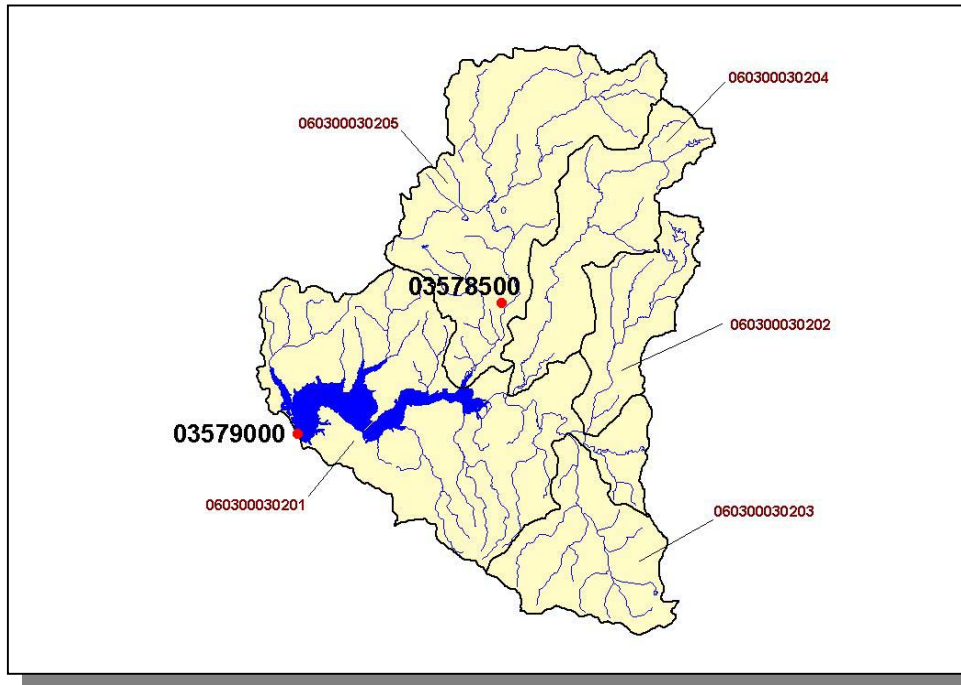
STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN048	8.00	C	1.38	5.06	Silty Loam	0.42
TN060	5.00	B	1.30	5.32	Silty Loam	0.39
TN079	8.00	C	1.30	5.66	Silty Loam	0.35
TN095	0.00	B	2.35	5.12	Loam	0.31
TN096	1.00	C	1.22	5.16	Silty Loam	0.38
TN098	1.00	C	3.98	4.82	Loam	0.32
TN100	0.00	B	1.14	3.35	Silty Loam	0.21
TN101	0.00	B	1.71	5.39	Loam	0.35

**Table 4-8. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0603000302.** More information is provided in Upper Elk-Appendix IV.

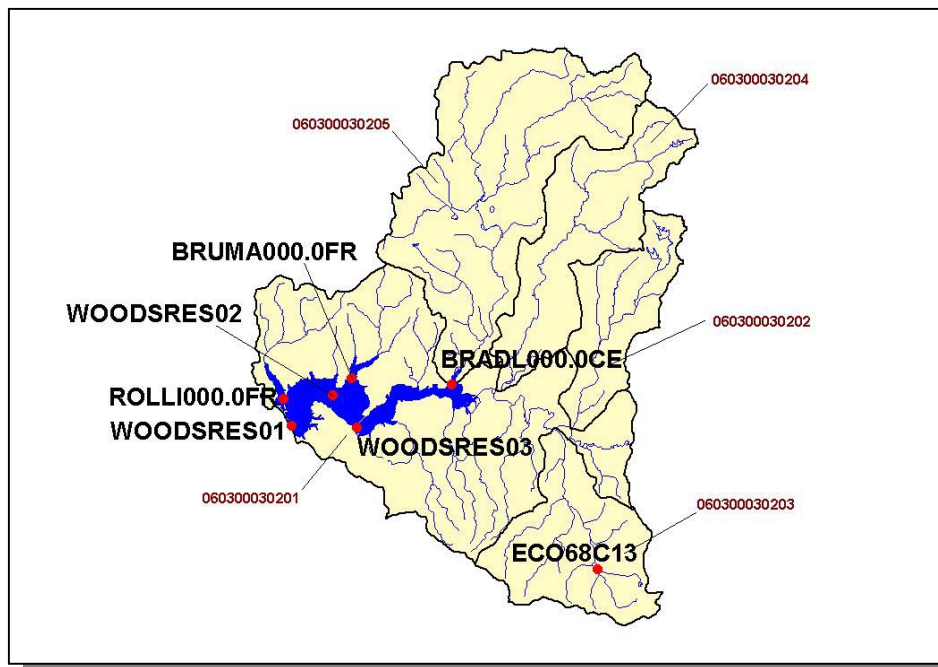
	COUNTY POPULATION			ESTIMATED POPULATION IN WATERSHED		% CHANGE
County	1990	1997 Est.	Portion of Watershed (%)	1990	1997	
Coffee	40,339	45,347	20.46	8,253	9,277	12.4
Franklin	34,725	37,152	13.03	4,526	4,842	7.0
Grundy	13,362	14,102	1.8	240	252	5.0
<b>Total</b>	<b>88,426</b>	<b>96,601</b>		<b>13,019</b>	<b>14,371</b>	<b>1.10</b>

*Table 4-9. Population Estimates in Subwatershed 0603000302.*



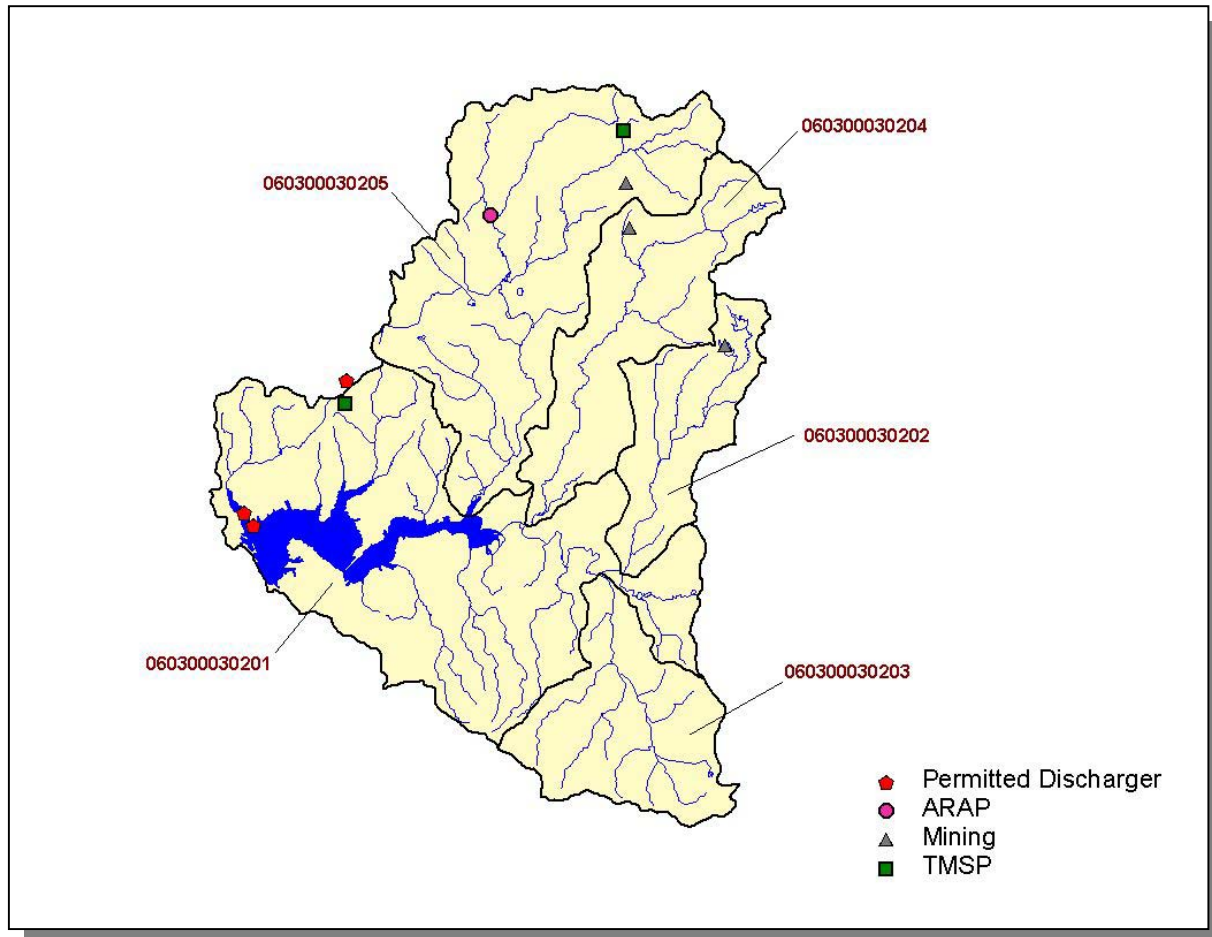


**Figure 4-17. Location of Historical Streamflow Data Collection Sites in Subwatershed 0603000302.** Subwatershed 060300030201, 060300030202, 060300030203, 060300030204, and 060300030205 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.

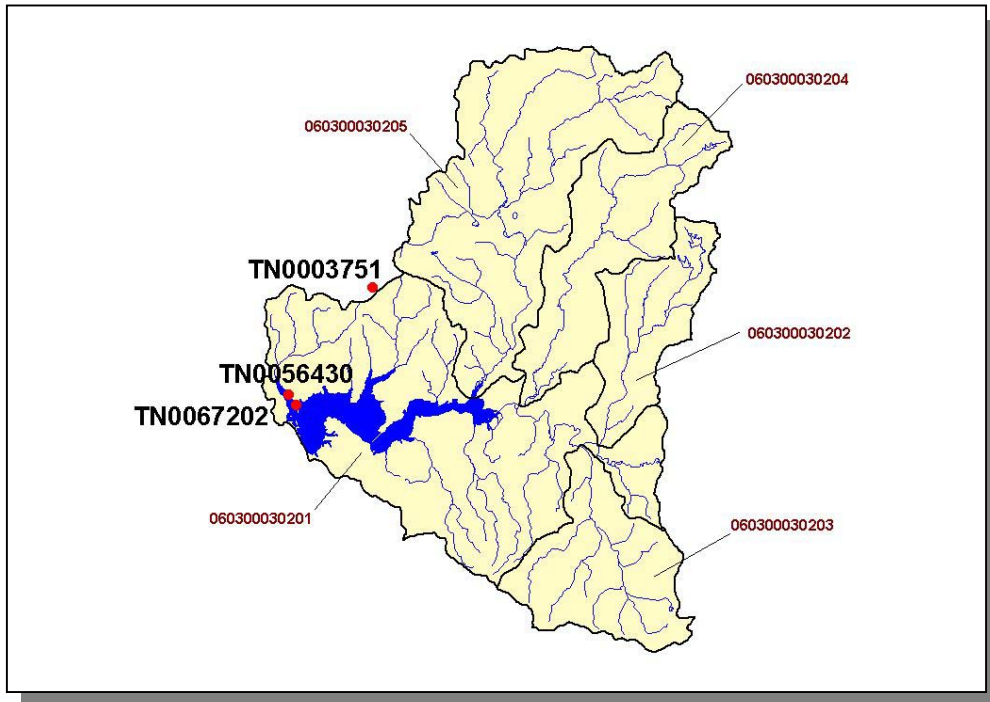


**Figure 4-18. Location of STORET Monitoring Sites in Subwatershed 0603000302.** Subwatershed 060300030201, 060300030202, 060300030203, 060300030204, and 060300030205 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.

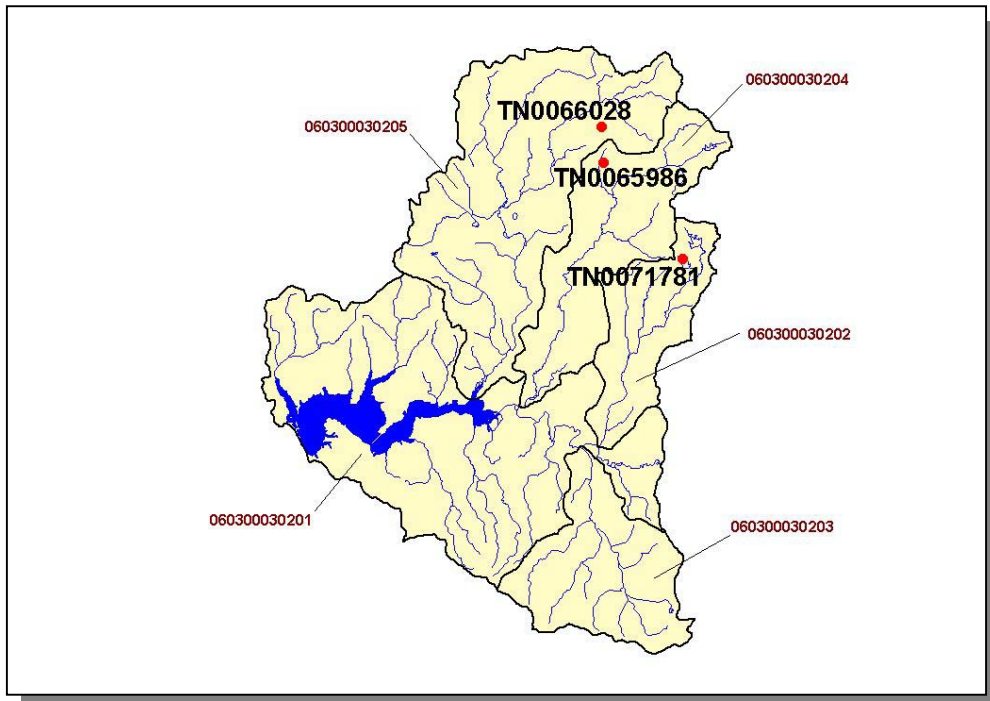
**4.2.B.ii.** Point Source Contributions.



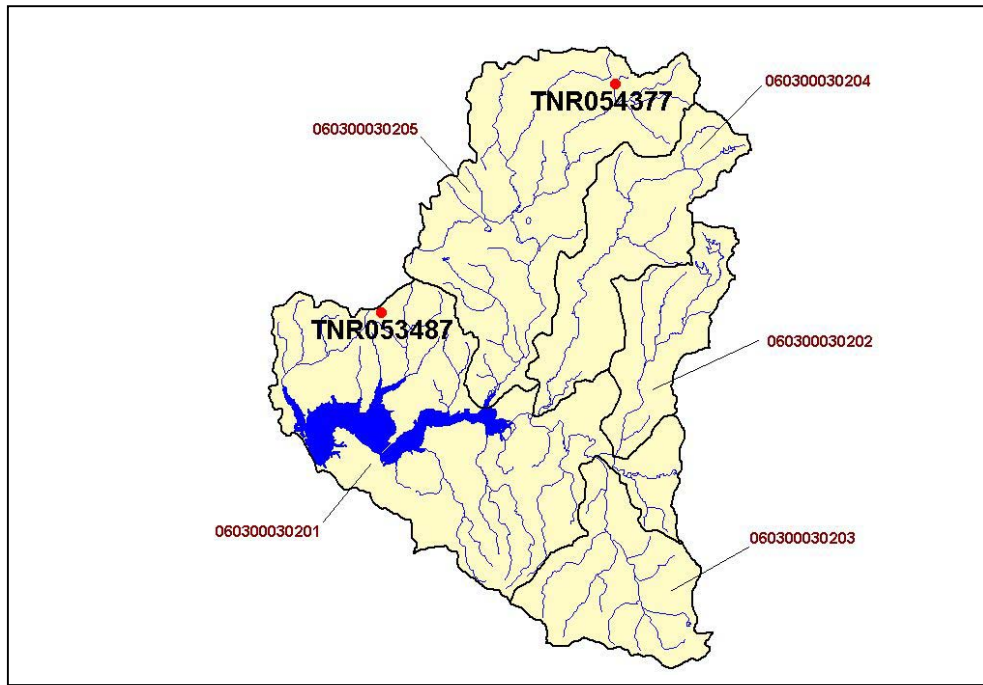
**Figure 4-19. Location of Active Point Source Facilities in Subwatershed 0603000302.** Subwatershed 060300030201, 060300030202, 060300030203, 060300030204, and 060300030205 boundaries are shown for reference. More information is provided in the following charts.



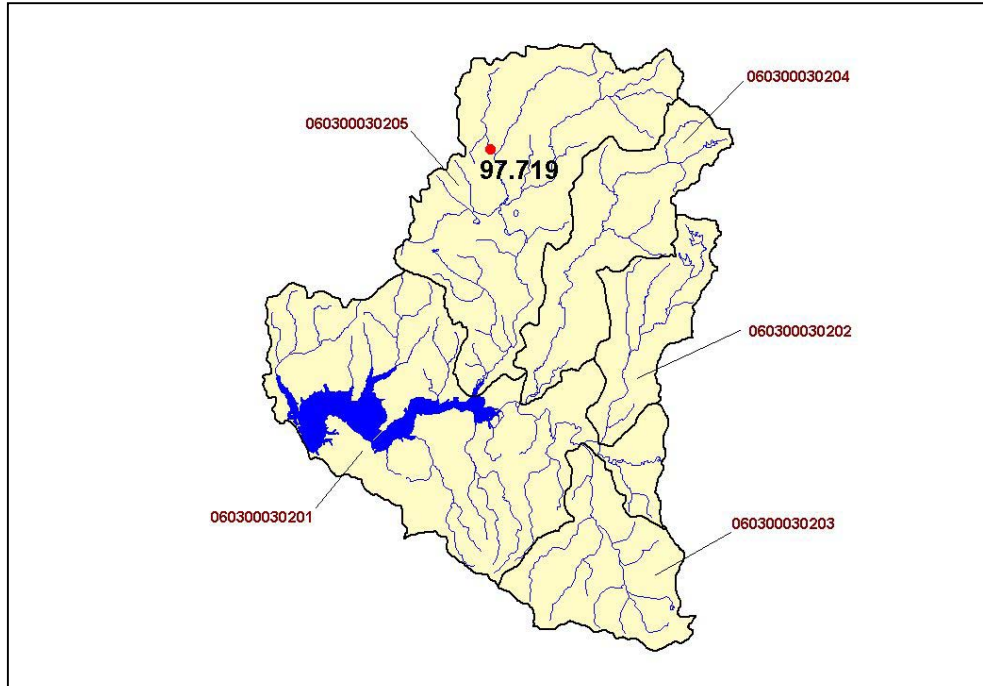
**Figure 4-20. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 0603000302.** Subwatershed 060300030201, 060300030202, 060300030203, 060300030204, and 060300030205 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.



**Figure 4-21. Location of Active Mining Sites in Subwatershed 0603000302.** Subwatershed 060300030201, 060300030202, 060300030203, 060300030204, and 060300030205 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.



**Figure 4-22. Location of TMSP Facilities in Subwatershed 0603000302.** Subwatershed 060300030201, 060300030202, 060300030203, 060300030204, and 060300030205 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.



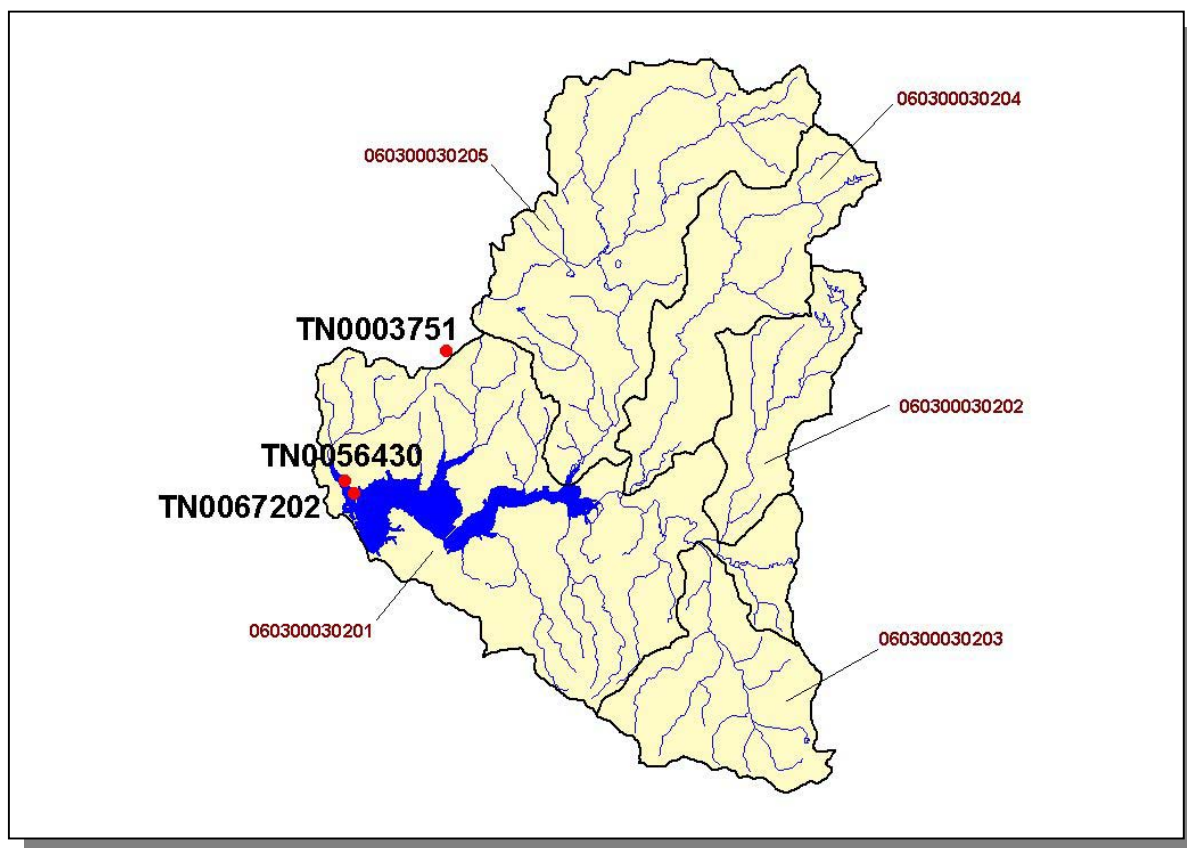
**Figure 4-23. Location of ARAP Sites (Individual Permits) in Subwatershed 0603000302.** Subwatershed 060300030201, 060300030202, 060300030203, 060300030204, and 060300030205 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.



**4.2.A.ii.a. Dischargers to Water Bodies Listed on the 1998 303(d) List**

There are three NPDES facilities discharging to water bodies listed on the 1998 303(d) list in Subwatershed 0603000302:

- TN0003751 (AEDC) discharges to Bradley, Brumalow, Rowland, and Spring Creeks and to Woods Reservoir
- TN0056430 (UT Space Institute) discharges to Rollins Creek @ RM 1.1
- TN0067202 (UT Space Institute) discharges to Rollins Creek Embayment of Woods Reservoir



**Figure 4-24. Location of NPDES Dischargers to Water Bodies Listed on the 1998 303(d) List in Subwatershed 0603000302.** Subwatershed 060300030201, 060300030202, 060300030203, 060300030204, and 060300030205 boundaries are shown for reference. The names of facilities are provided in Upper Elk-Appendix IV.

PERMIT #	1Q10	3Q10	7Q10	3Q20	QDESIGN
TN0003751				0.00	Varies by Outfall
TN0056430				0.00	0.00630
TN0067202					0.02

**Table 4-10. Receiving Stream Flow Information for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 0603000302.** Data are in million gallons per day (MGD). Data were obtained from the USGS publication Flow Duration and Low Flows of Tennessee Streams Through 1992 or from permit files.

PERMIT #	DO	TDS	TSS	pH	OIL and GREASE	SETTLEABLE SOLIDS	FECAL COLIFORM	NH <sub>3</sub>	CBOD <sub>5</sub>	TEMP	TRC	TSS
TN0003751	X		X	X	X	X	X	X	X	X	X	X
TN0056430		X		X	X							X
TN0067202	X		X	X				X	X		X	

**Table 4-11. Parameters Monitored for Daily Maximum (mg/L) Limits for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 0603000302.** TDS, Total Dissolved Solids; TSS, Total Suspended Solids; TCR, Total Residual Chlorine.

PERMIT #	Ag	Cu	Cd	Cr (Total)	Pb
TN0003751	X	X	X	X	X

**Table 4-12a. Inorganic Parameters Monitored for Daily Maximum Limits for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 0603000302.**

PERMIT #	FLOW	71-55-6	75-35-4	79-01-6	127-18-4	75-09-2
TN0003751	X	X	X	X	X	X

**Table 4-12b. Parameters Monitored by NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 0603000302.** CAS (Chemical Abstract System) Codes: 71-55-6, Trichloroethane; 75-35-4, 1,1-Dichloroethene; 79-01-6, Trichloroethene; 127-18-4, Tetrachloroethene; 75-09-2, Methylene Chloride.

**4.2.B.iii.** Nonpoint Source Contributions.

<b>LIVESTOCK (COUNTS)</b>						
Beef Cow	Cattle	Milk Cow	Chickens	Chickens Sold	Hogs	Sheep
5,608	13,816	1,281	12	2,607,744	3,475	85

**Table 4-13. Summary of Livestock Count Estimates in Subwatershed 0603000302.**  
According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

County	<b>INVENTORY</b>		<b>REMOVAL RATE</b>	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Coffee	114.4	114.2	2.8	12.7
Franklin	183.4	183.0	6.0	28.7
Grundy	174.5	165.9	5.6	17.7
<b>Total</b>	<b>472.3</b>	<b>463.1</b>	<b>14.4</b>	<b>59.1</b>

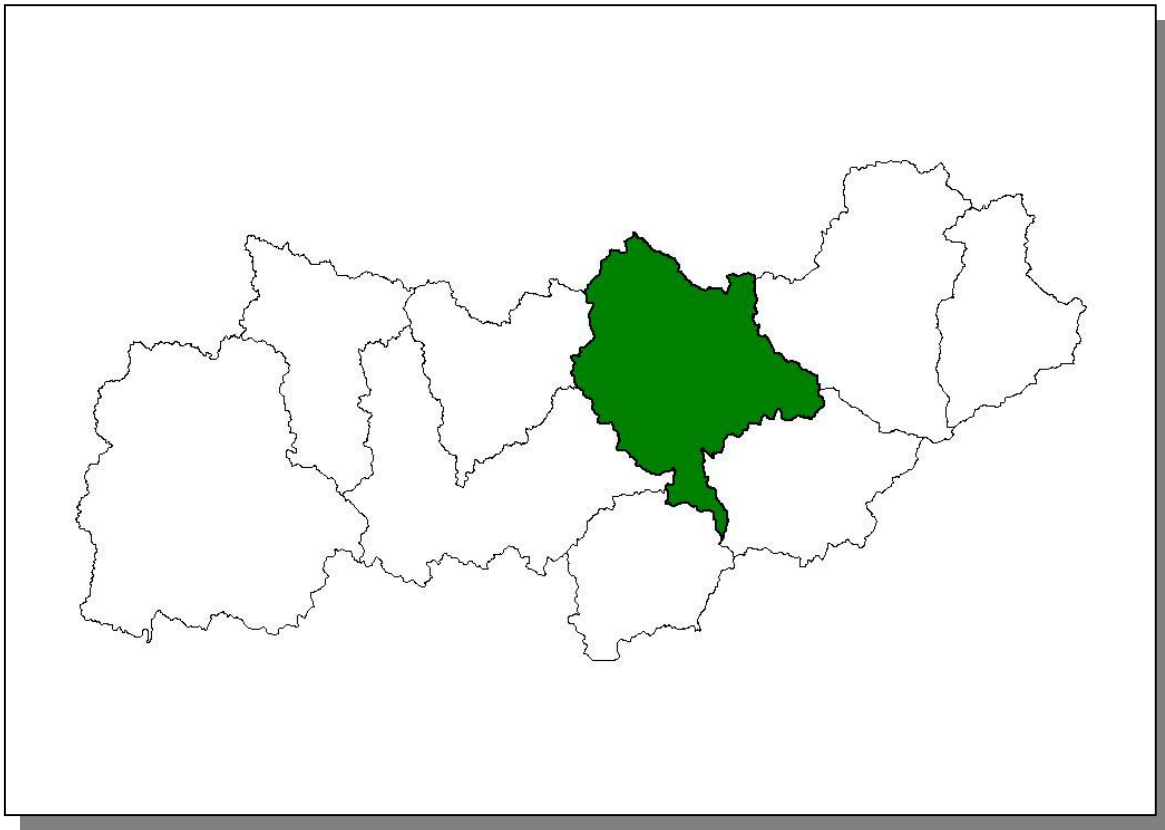
**Table 4-14. Forest Acreage and Average Annual Removal Rates (1987-1994) in Subwatershed 0603000302.**

<b>CROPS</b>	<b>TONS/ACRE/YEAR</b>
Legume/Grass (Hayland)	0.16
Grass (Hayland)	0.72
Forest Land (Grazed)	0.00
Forest Land (Not Grazed)	0.00
Corn (Row Crops)	8.29
Soybeans (Row Crops)	10.34
Cotton (Row Crops)	4.03
Wheat (Close Grown Cropland)	10.08
Grass (Pastureland)	0.94
Grass, Forbs, Legumes (Mixed Pasture)	0.38
Other Vegetable and Truck Crop	4.37
Other (Horticulture)	2.14
Other Cropland not Planted	4.56
Conservation Reserve Program Land	0.11
Non Agricultural Land Use	0.00
Farmsteads and Ranch Headquarters	0.16

**Table 4-15. Annual Estimated Total Soil Loss in Subwatershed 0603000302.**

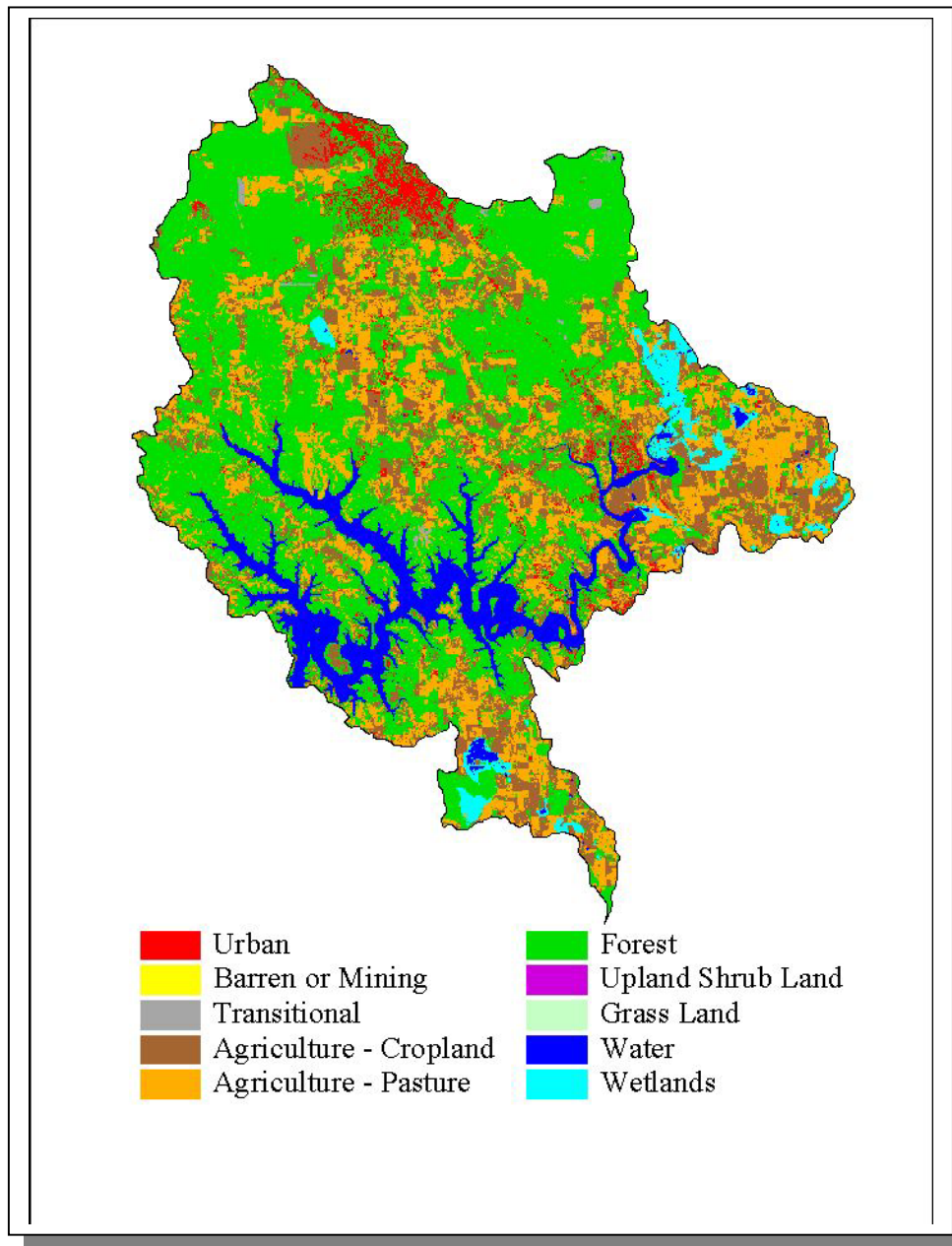


**4.2.C. 0603000303.**

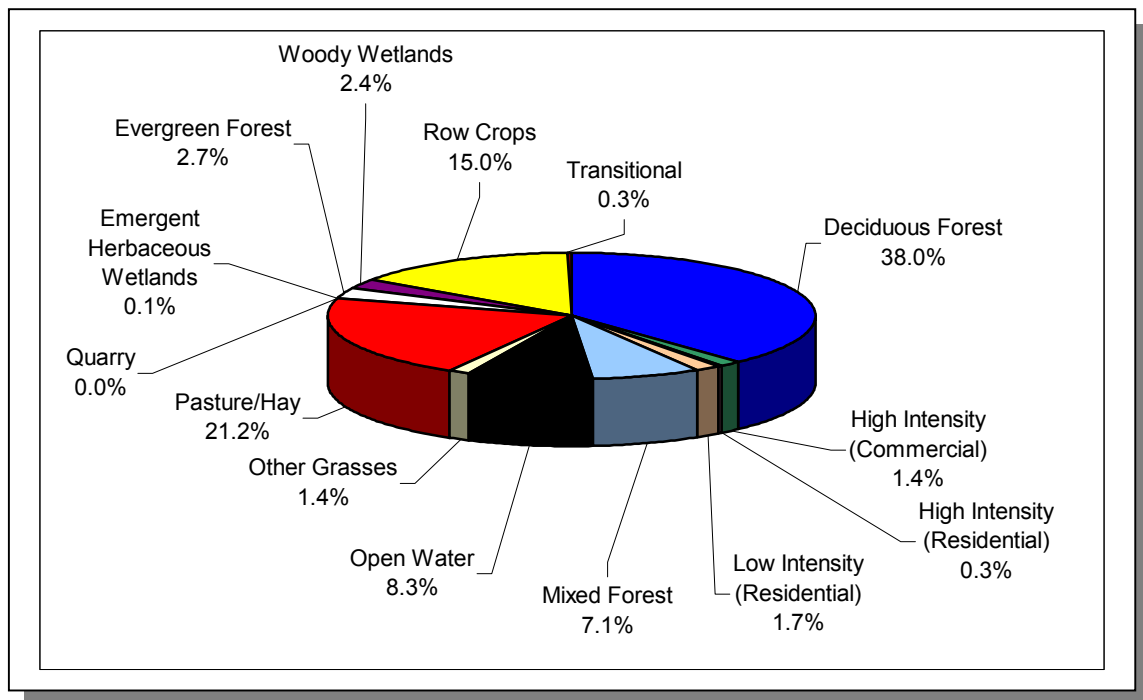


**Figure 4-25. Location of Subwatershed 0603000303.** All Upper Elk HUC-10 subwatershed boundaries are shown for reference.

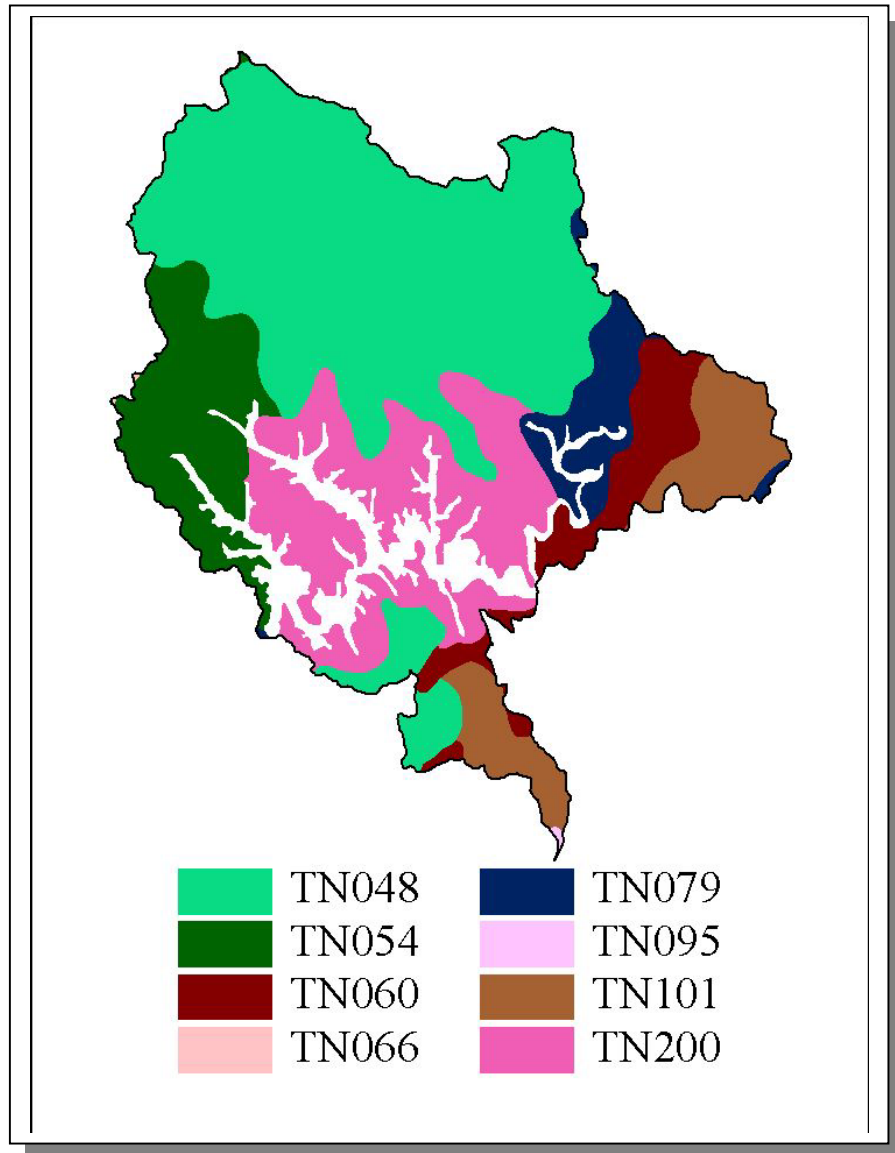
4.2.C.i. General Description.



*Figure 4-26. Illustration of Land Use Distribution in Subwatershed 0603000303.*



**Figure 4-27. Land Use Distribution in Subwatershed 0603000303.** More information is provided in Upper Elk-Appendix IV.



**Figure 4-28. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0603000303.**

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN048	8.00	C	1.38	5.06	Silty Loam	0.42
TN054	0.00	C	3.04	4.84	Loam	0.32
TN060	5.00	B	1.30	5.32	Silty Loam	0.39
TN066	0.00	B	2.62	4.75	Loam	0.28
TN079	8.00	C	1.30	5.66	Silty Loam	0.35
TN095	0.00	B	2.35	5.12	Loam	0.31
TN101	0.00	B	1.71	5.39	Loam	0.35
TN200	1.00	B	2.81	5.28	Loam	0.31

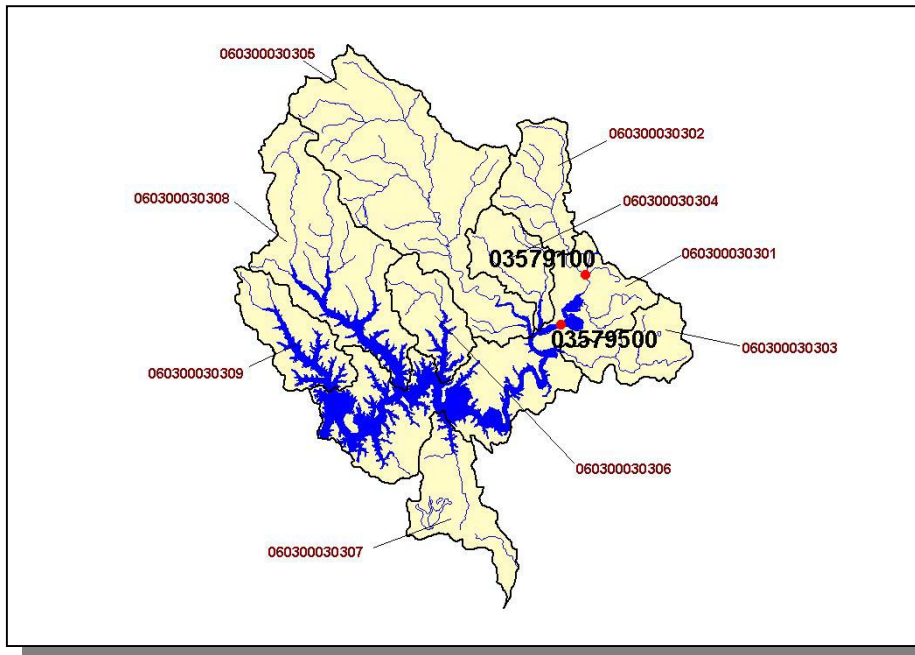
**Table 4-16. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0603000303.** More information is provided in Upper Elk-Appendix IV.

County	COUNTY POPULATION		Portion of Watershed (%)	ESTIMATED POPULATION IN WATERSHED		PERCENT CHANGE
	1990	1997 Est.		1990	1997	
Coffee	40,339	45,347	2.22	895	1,006	12.4
Franklin	34,725	37,152	21.86	7,591	8,122	7.0
Moore	4,721	5,205	26.95	1,272	1,403	10.3
<b>Total</b>	<b>79,785</b>	<b>87,704</b>		<b>9,758</b>	<b>10,531</b>	<b>7.9</b>

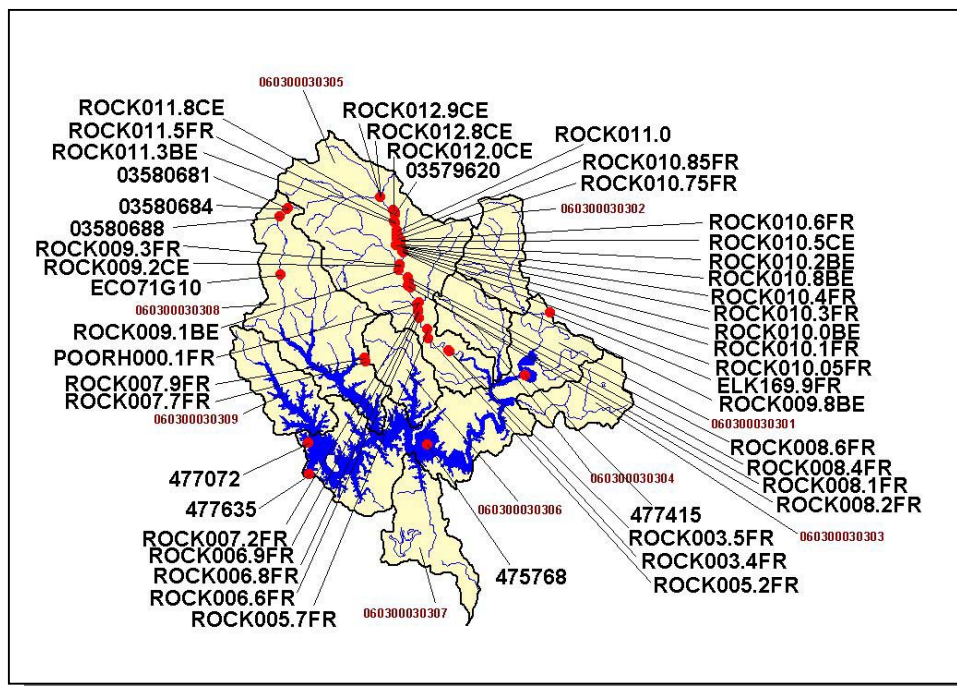
*Table 4-17. Population Estimates in Subwatershed 0603000303.*

Populated Place	County	Population	NUMBER OF HOUSING UNITS			
			Total	Public Sewer	Septic Tank	Other
Estill Springs	Franklin	1,412	615	50	562	3
Winchester	Franklin	6,305	2,625	2,318	307	0
Tullahoma	Coffee	16,757	7,109	6,184	920	5
<b>Totals</b>		<b>24,474</b>	<b>10,349</b>	<b>8,552</b>	<b>1,789</b>	<b>8</b>

*Table 4-18. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 0603000303.*

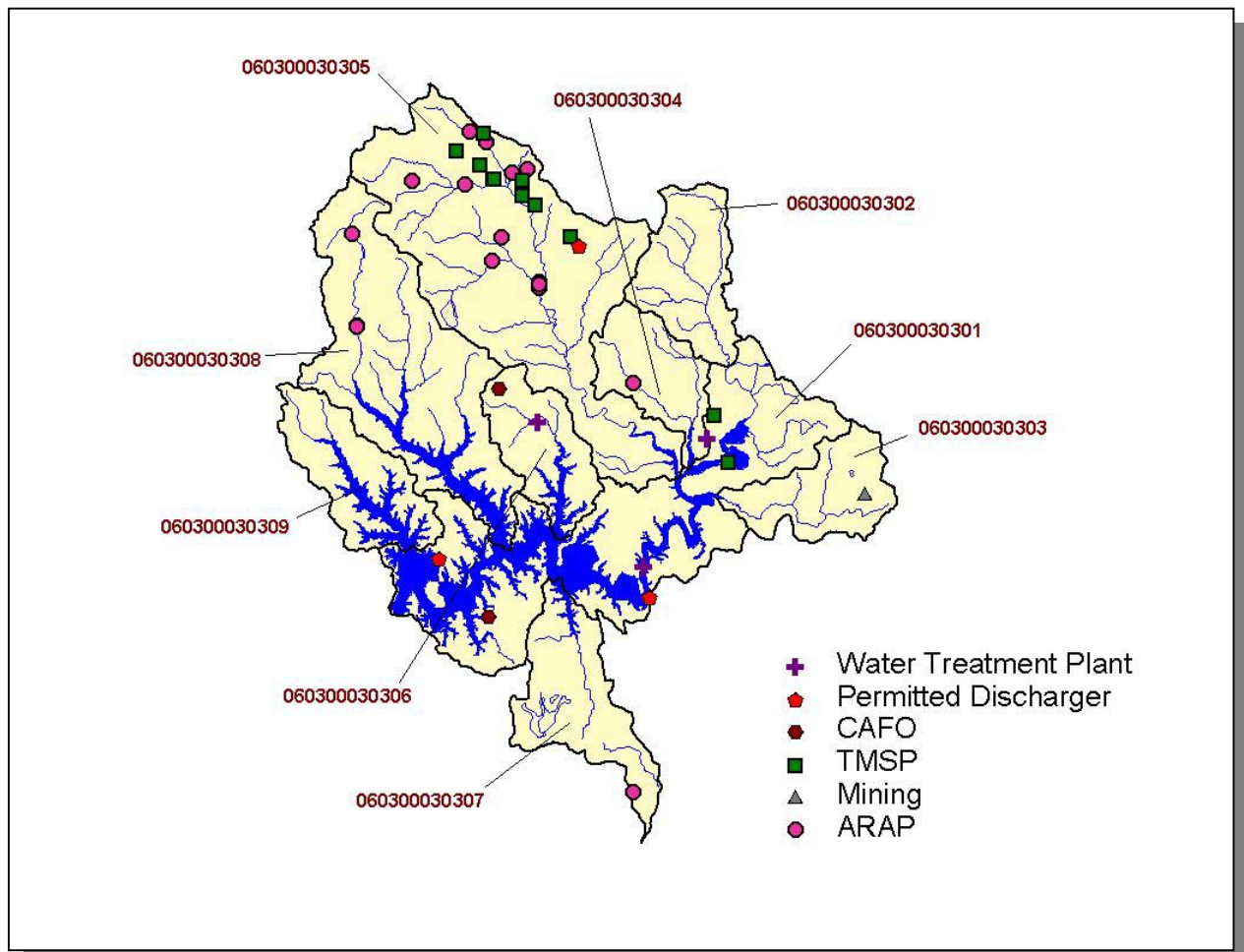


**Figure 4-29. Location of Historical Streamflow Data Collection Sites in Subwatershed 0603000303.** Subwatershed 060300030301, 060300030302, 060300030303, 060300030304, 060300030305, 060300030306, 060300030307, 060300030308, and 060300030309 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.



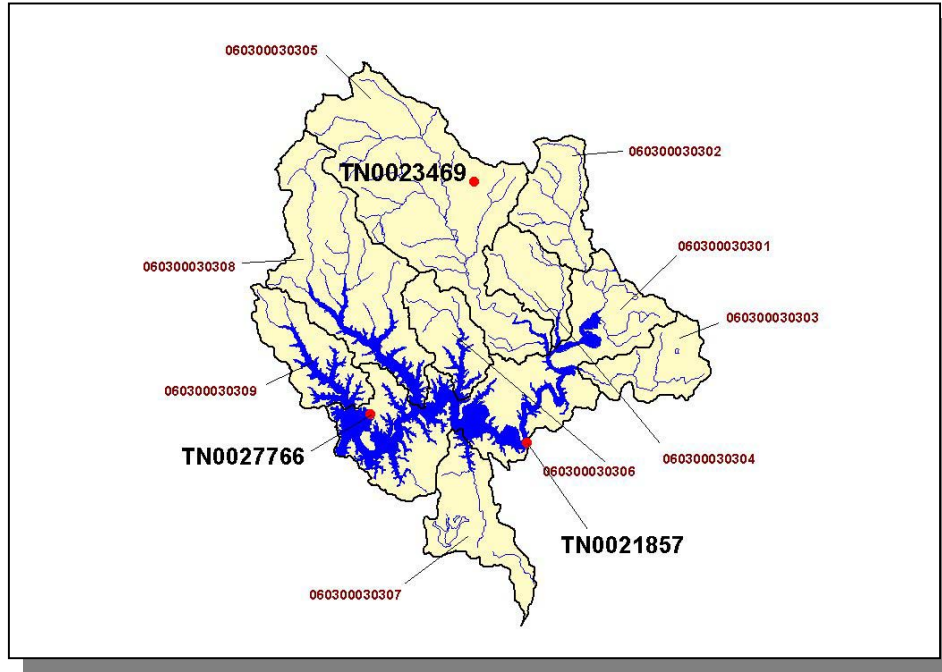
**Figure 4-30. Location of STORET Monitoring Sites in Subwatershed 0603000303.** Subwatershed 060300030301, 060300030302, 060300030303, 060300030304, 060300030305, 060300030306, 060300030307, 060300030308, and 060300030309 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.

**4.2.C.ii.** Point Source Contributions.

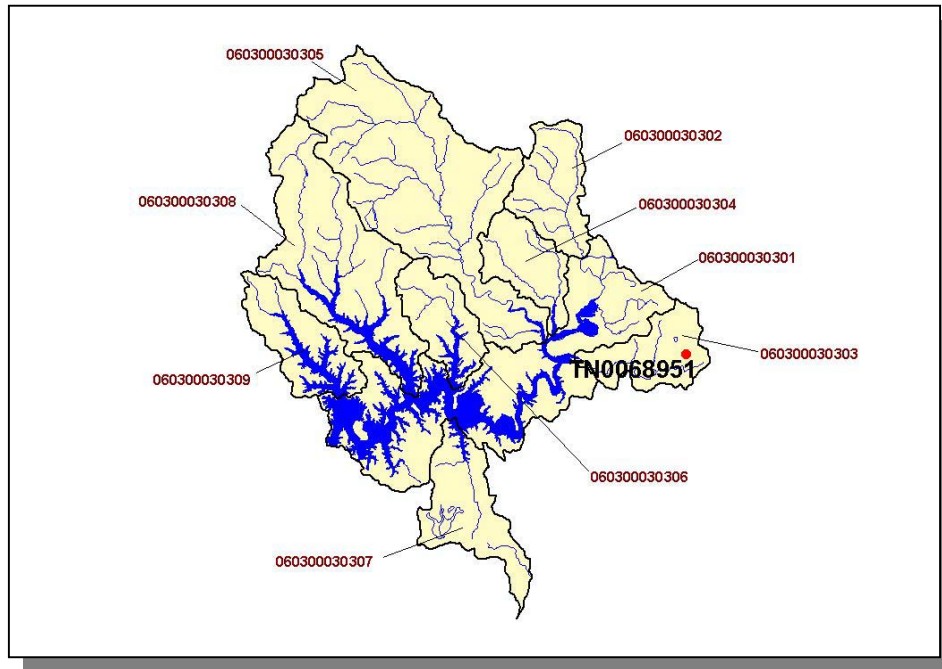


**Figure 4-31. Location of Active Point Source Facilities in Subwatershed 0603000303.** Subwatershed 060300030301, 060300030302, 060300030303, 060300030304, 060300030305, 060300030306, 060300030307, 060300030308, and 060300030309 boundaries are shown for reference. More information is provided in the following charts.

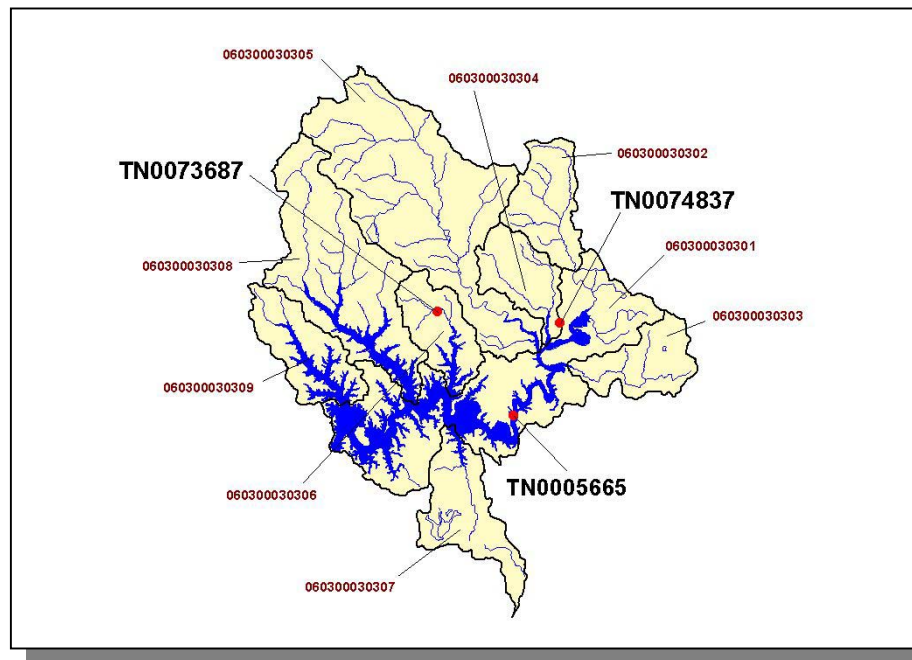




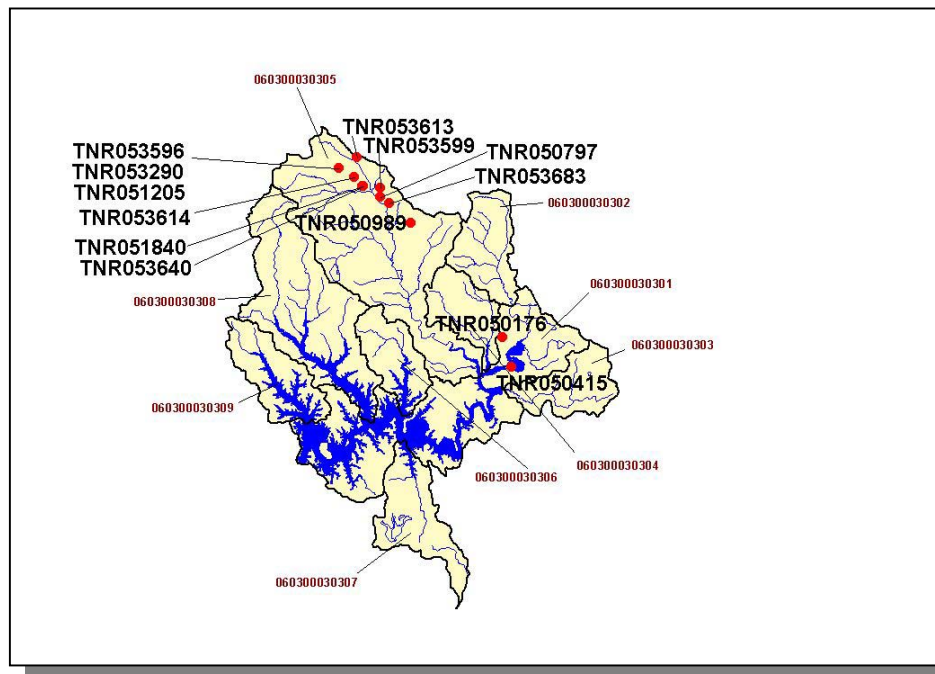
**Figure 4-32. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 0603000303.** Subwatershed 060300030301, 060300030302, 060300030303, 060300030304, 060300030305, 060300030306, 060300030307, 060300030308, and 060300030309 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.



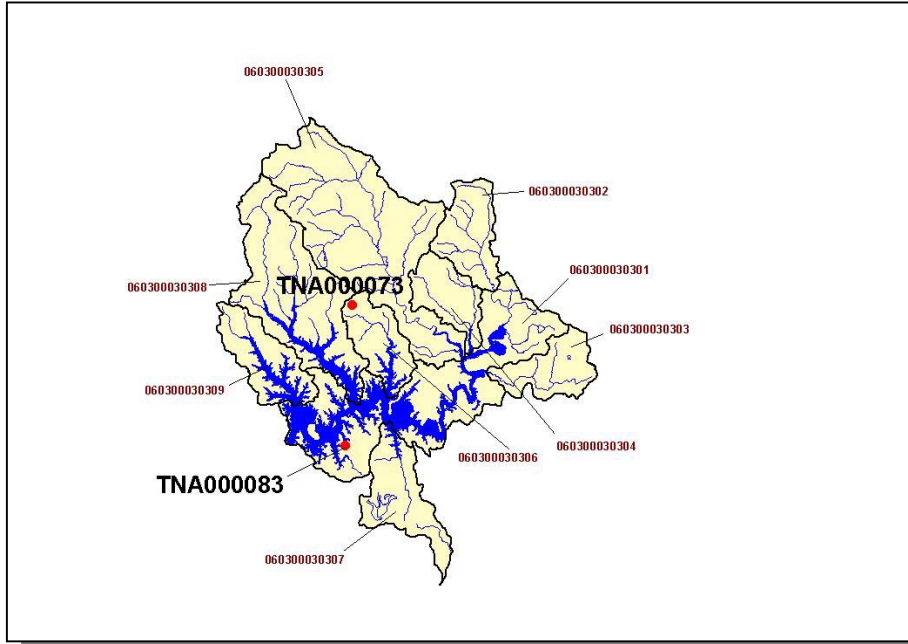
**Figure 4-33. Location of Active Mining Sites in Subwatershed 0603000303.** Subwatershed 060300030301, 060300030302, 060300030303, 060300030304, 060300030305, 060300030306, 060300030307, 060300030308, and 060300030309 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.



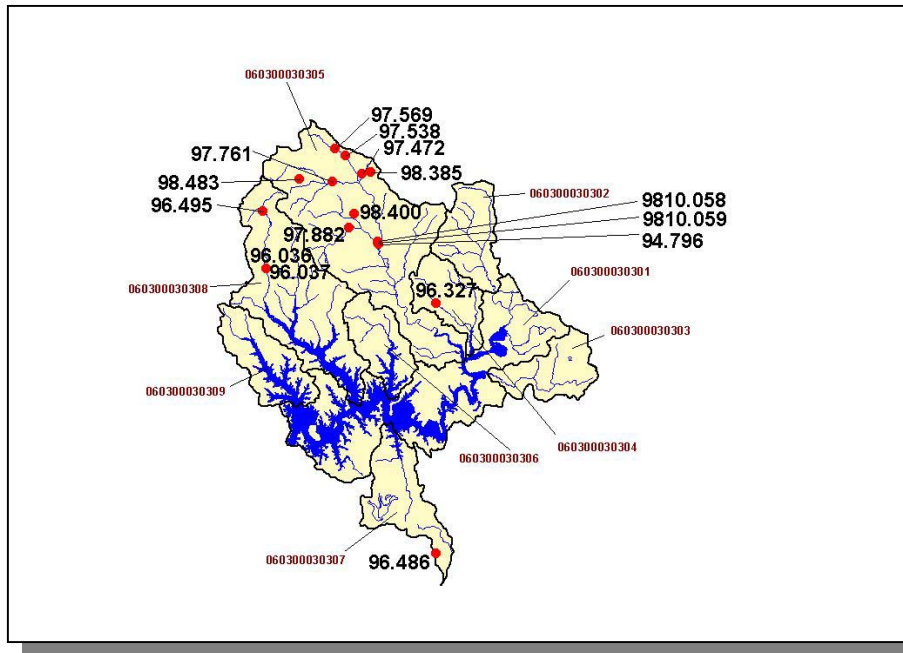
**Figure 4-34. Location of Water Treatment Plant Sites in Subwatershed 0603000303.** Subwatershed 060300030301, 060300030302, 060300030303, 060300030304, 060300030305, 060300030306, 060300030307, 060300030308, and 060300030309 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.



**Figure 4-35. Location of TMSP Facilities in Subwatershed 0603000303.** Subwatershed 060300030301, 060300030302, 060300030303, 060300030304, 060300030305, 060300030306, 060300030307, 060300030308, and 060300030309 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.



**Figure 4-36. Location of CAFO Facilities in Subwatershed 0603000303.** Subwatershed 060300030301, 060300030302, 060300030303, 060300030304, 060300030305, 060300030306, 060300030307, 060300030308, and 060300030309 boundaries are shown for reference. CAFO rules may be found at <http://cfpub.epa.gov/npdes/afo/cafofinalrule.cfm>. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.



**Figure 4-37. Location of ARAP Sites (Individual Permits) in Subwatershed 0603000303.** Subwatershed 060300030301, 060300030302, 060300030303, 060300030304, 060300030305, 060300030306, 060300030307, 060300030308, and 060300030309 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.

**4.2.C.iii.** Nonpoint Source Contributions.

<b>LIVESTOCK (COUNTS)</b>						
Beef Cow	Cattle	Milk Cow	Chickens	Chickens Sold	Hogs	Sheep
5,293	11,552	1,033	12	2,849,062	5,729	44

**Table 4-19. Summary of Livestock Count Estimates in Subwatershed 0603000303.**  
According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

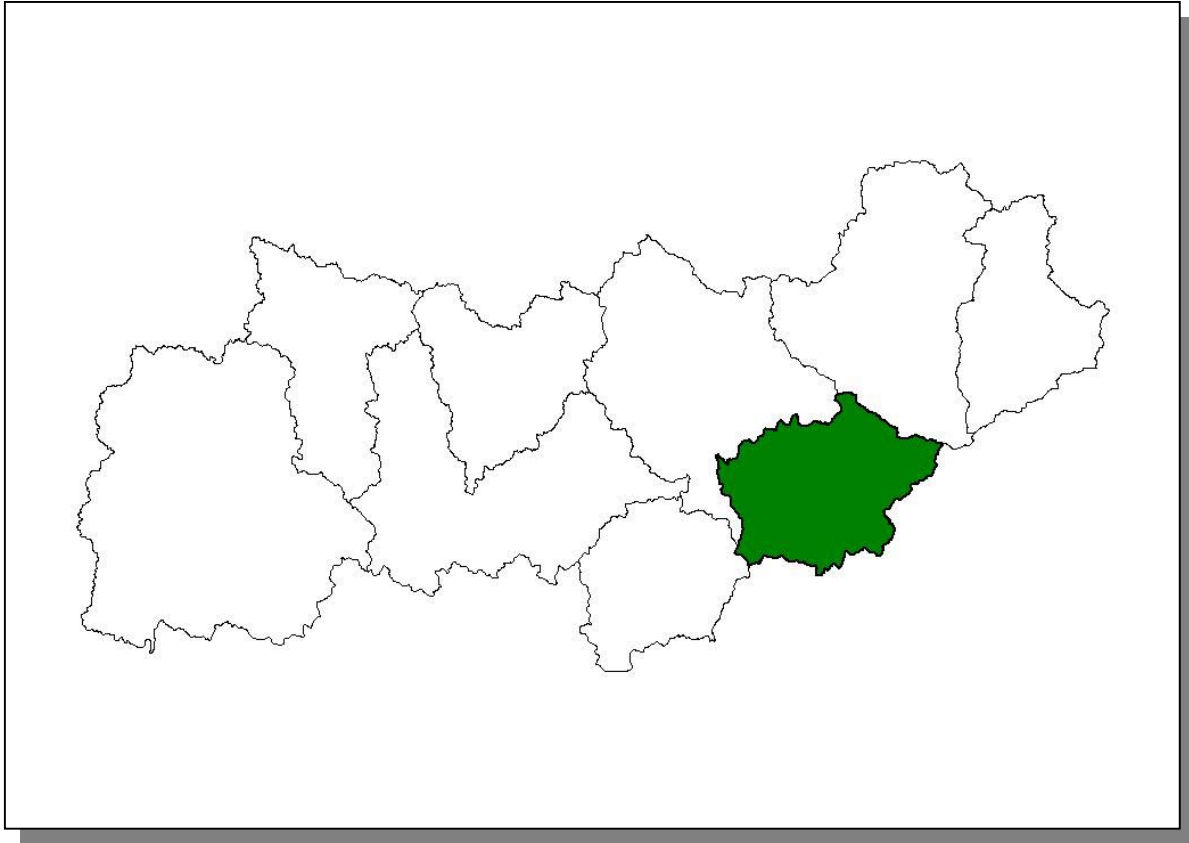
County	<b>INVENTORY</b>		<b>REMOVAL RATE</b>	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Coffee	114.4	114.2	2.8	12.7
Franklin	183.4	183.0	6.0	28.7
Moore	36.6	36.6	0.0	0.0
Totals	334.4	333.8	8.8	41.4

**Table 4-20. Forest Acreage and Average Annual Removal Rates (1987-1994) in Subwatershed 0603000303.**

<b>CROPS</b>	<b>TONS/ACRE/YEAR</b>
Corn (Row Crops)	5.56
Soybeans (Row Crops)	4.76
Cotton (Row Crops)	4.03
Legume (Hayland)	1.35
Grass (Pastureland)	0.75
Grass, Forbs, Legumes (Mixed Pasture)	0.83
Forest Land (Grazed)	0.00
Forest Land (Not Grazed)	0.00
Wheat (Close Grown Cropland)	6.14
All Other Close Grown Cropland	5.82
Other Vegetable and Truck Crop	4.37
Other (Horticultural)	1.92
Conservation Reserve Program Land	0.09
Farmsteads and Ranch Headquarters	0.13
Other Cropland not Planted	2.37
Nonagricultural Land Use	0.00

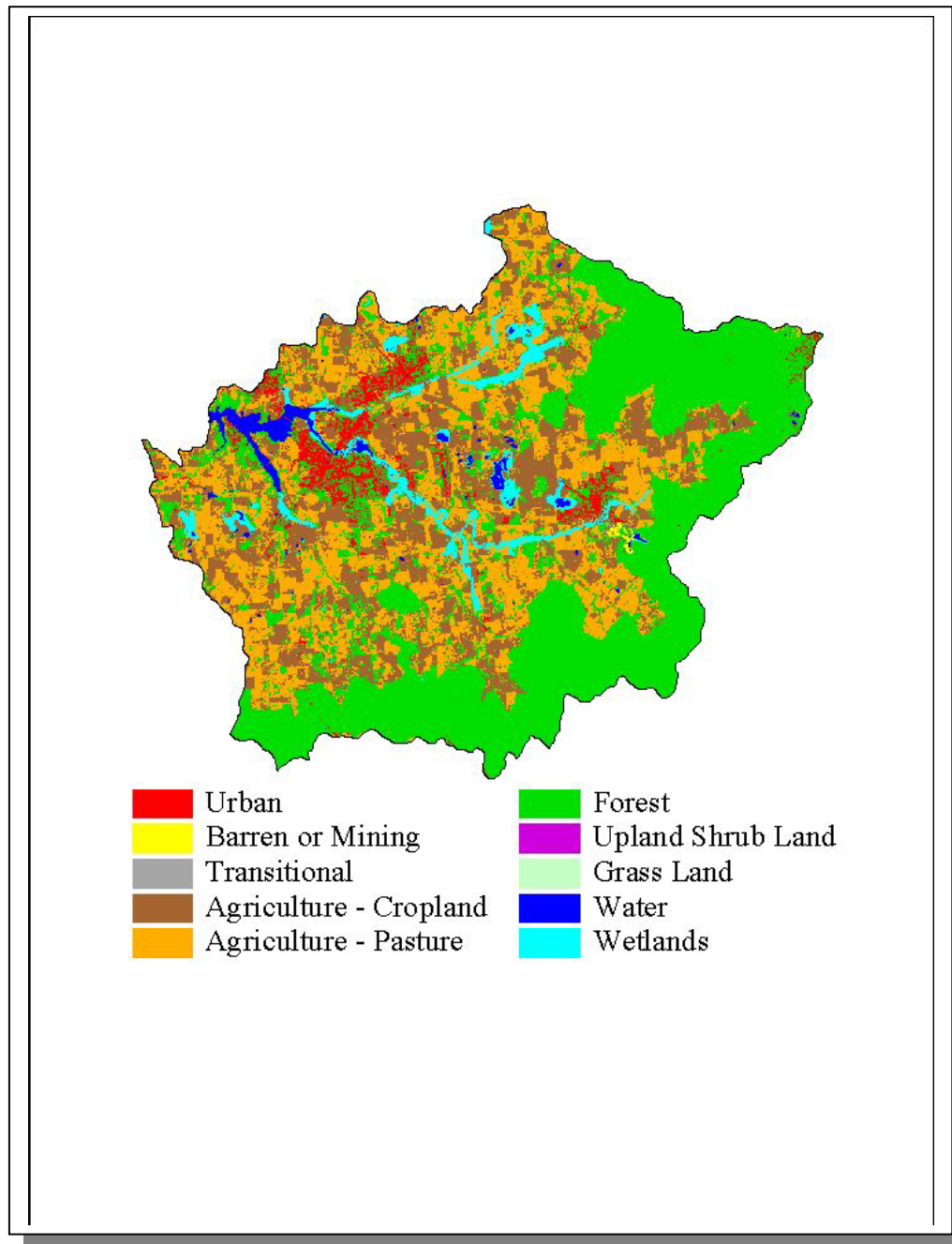
**Table 4-21. Annual Estimated Total Soil Loss in Subwatershed 0603000303.**

**4.2.D. 0603000304.**

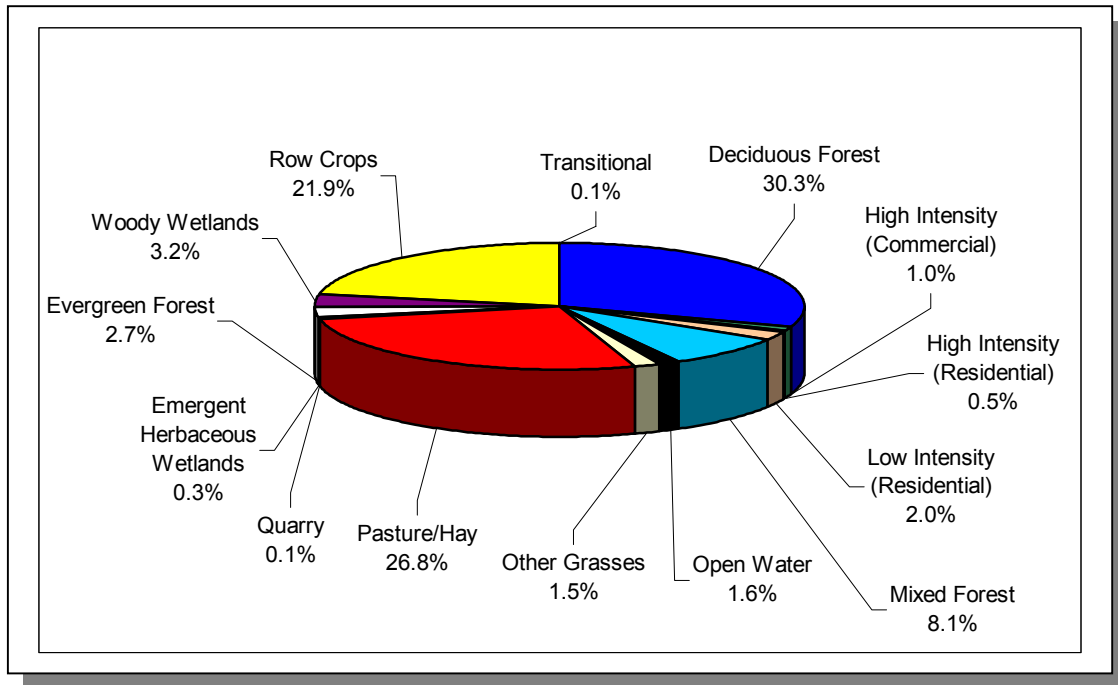


**Figure 4-38. Location of Subwatershed 0603000304.** All Upper Elk HUC-10 subwatershed boundaries are shown for reference.

4.2.D.i. General Description.

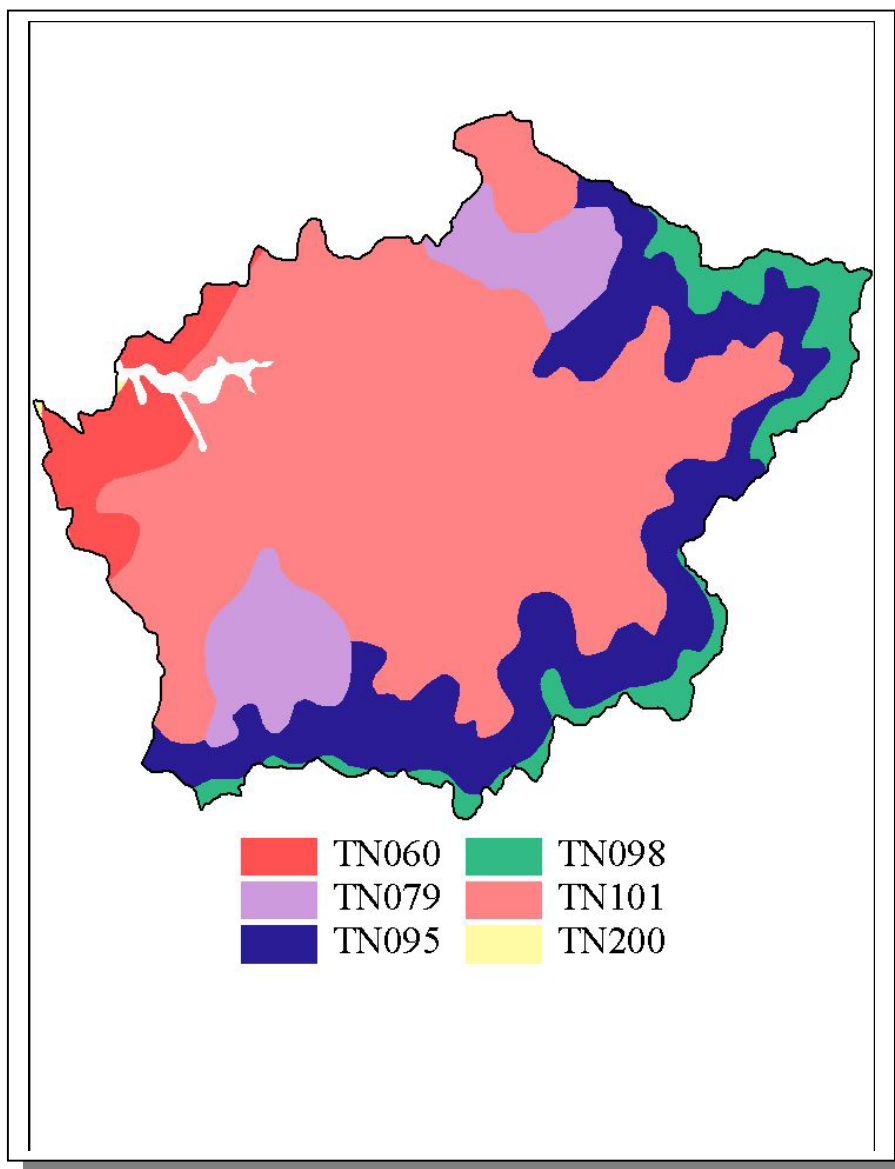


*Figure 4-39. Illustration of Land Use Distribution in Subwatershed 0603000304.*



**Figure 4-40. Land Use Distribution in Subwatershed 0603000304.** More information is provided in Upper Elk-Appendix IV.





**Figure 4-41. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0603000304.**

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN060	5.00	B	1.30	5.32	Silty Loam	0.39
TN079	8.00	C	1.30	5.66	Silty Loam	0.35
TN095	0.00	B	2.35	5.12	Loam	0.31
TN098	1.00	C	3.98	4.82	Loam	0.32
TN101	0.00	B	1.71	5.39	Loam	0.35
TN200	1.00	B	2.81	5.28	Loam	0.31

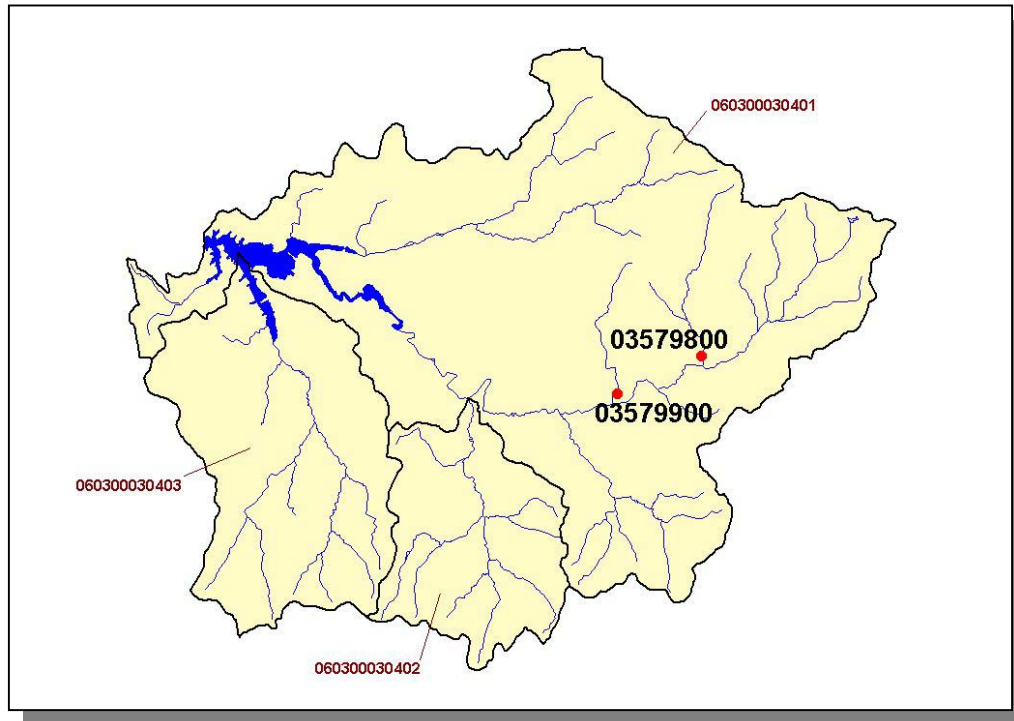
**Table 4-22. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0603000304.** More information is provided in Upper Elk-Appendix IV.

	COUNTY POPULATION		Portion of Watershed (%)	ESTIMATED POPULATION IN WATERSHED		% CHANGE
	1990	1997 Est.		1990	1997	
County						
Franklin	34,725	37,152	18.63	6,470	6,922	7.0

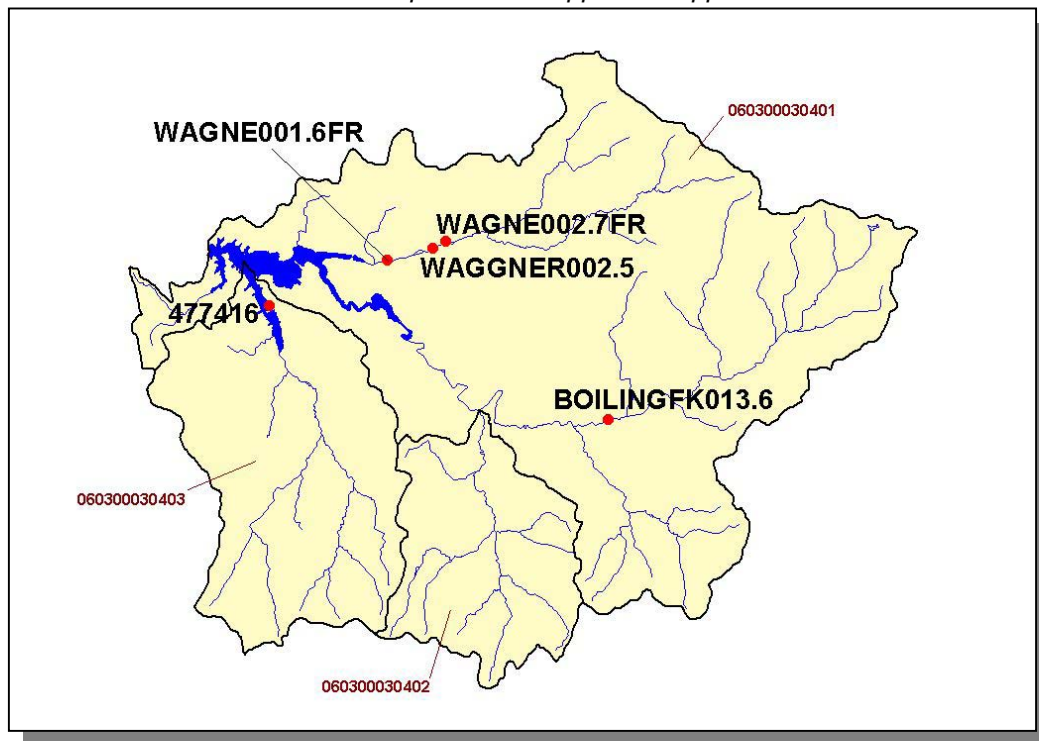
**Table 4-23. Population Estimates in Subwatershed 0603000304.**

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Cowan	Franklin	1,738	728	701	27	0
Decherd	Franklin	2,296	913	867	46	0
Winchester	Franklin	6,305	2,625	2,318	307	0
<b>Total</b>		<b>10,339</b>	<b>4,266</b>	<b>3,886</b>	<b>380</b>	<b>0</b>

**Table 4-24. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 0603000304.**

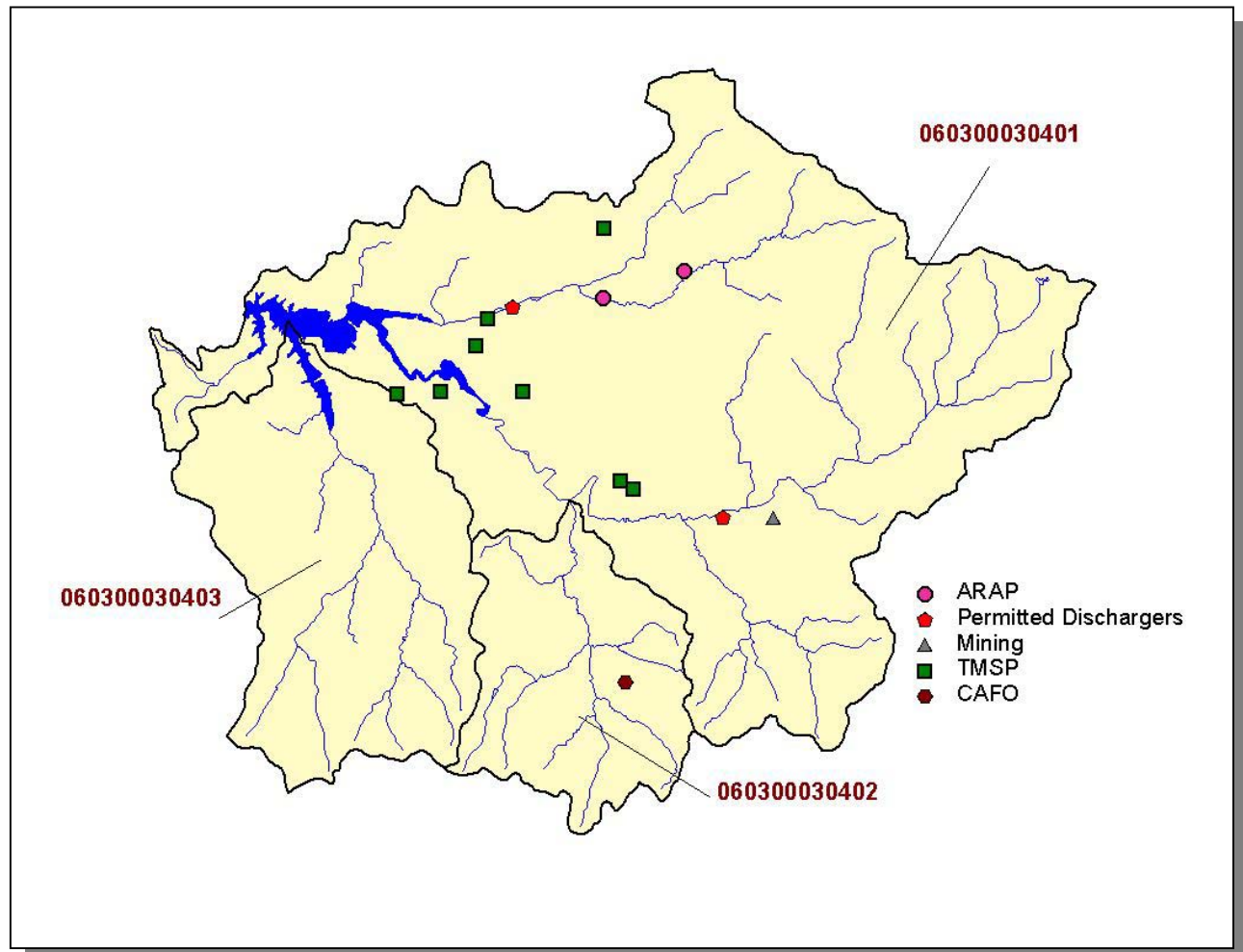


**Figure 4-42. Location of Historical Streamflow Data Collection Sites in Subwatershed 0603000304.** Subwatershed 060300030401, 060300030402, and 060300030403 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.

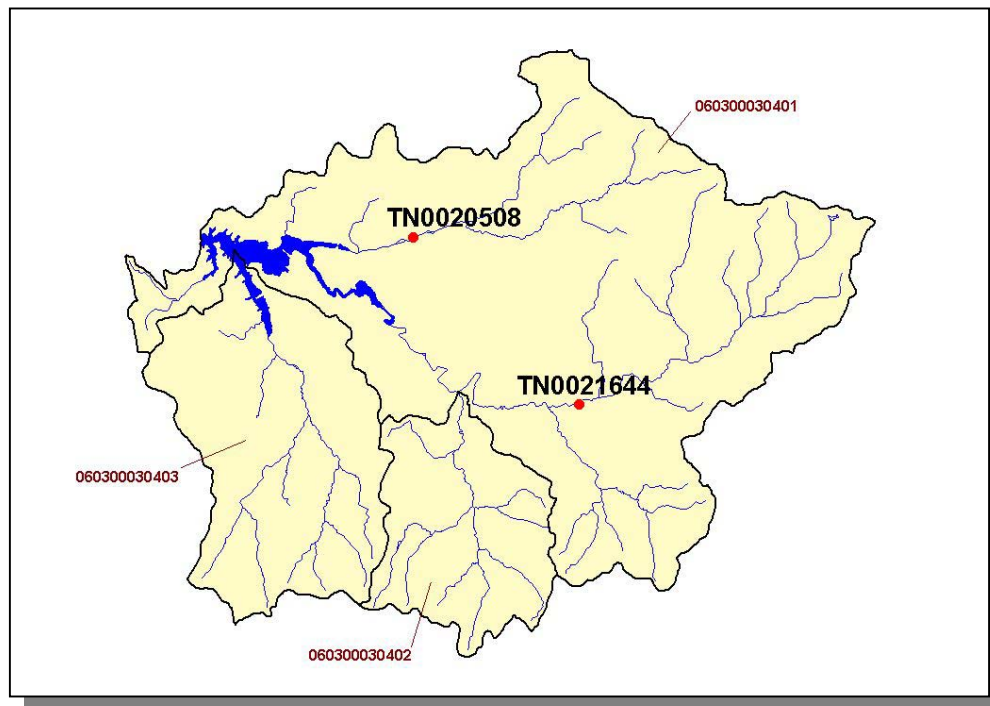


**Figure 4-43. Location of STORET Monitoring Sites in Subwatershed 0603000304.** Subwatershed 060300030401, 060300030402, and 060300030403 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.

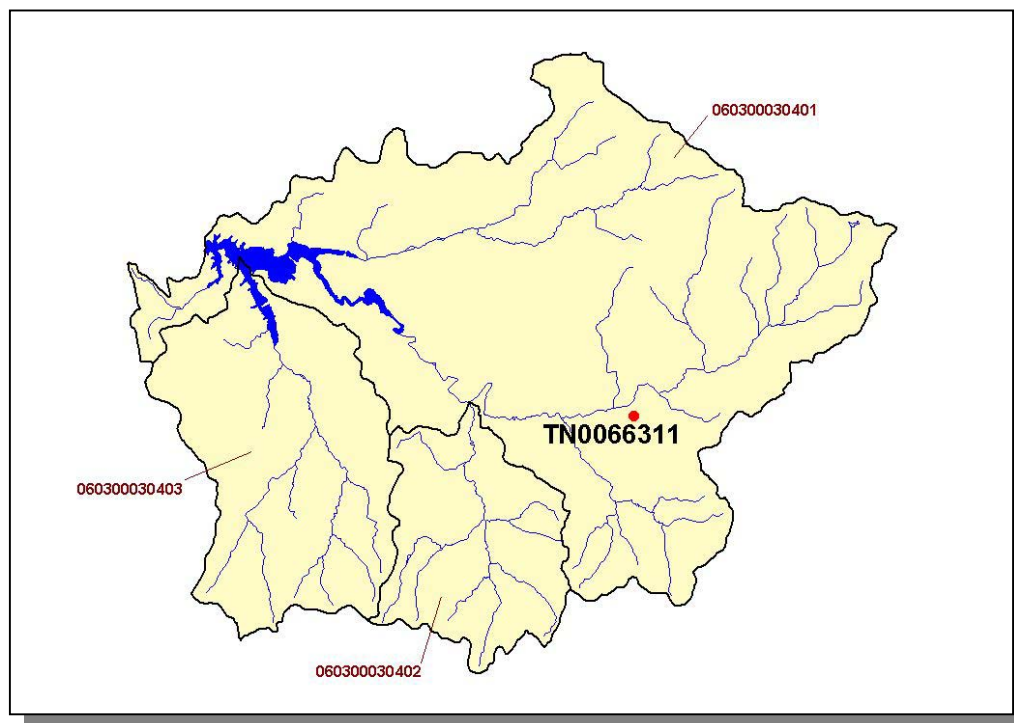
4.2.D.ii. Point Source Contributions.



**Figure 4-44. Location of Active Point Source Facilities in Subwatershed 0603000304.** Subwatershed 060300030401, 060300030402, and 060300030403 boundaries are shown for reference. More information is provided in the following charts.

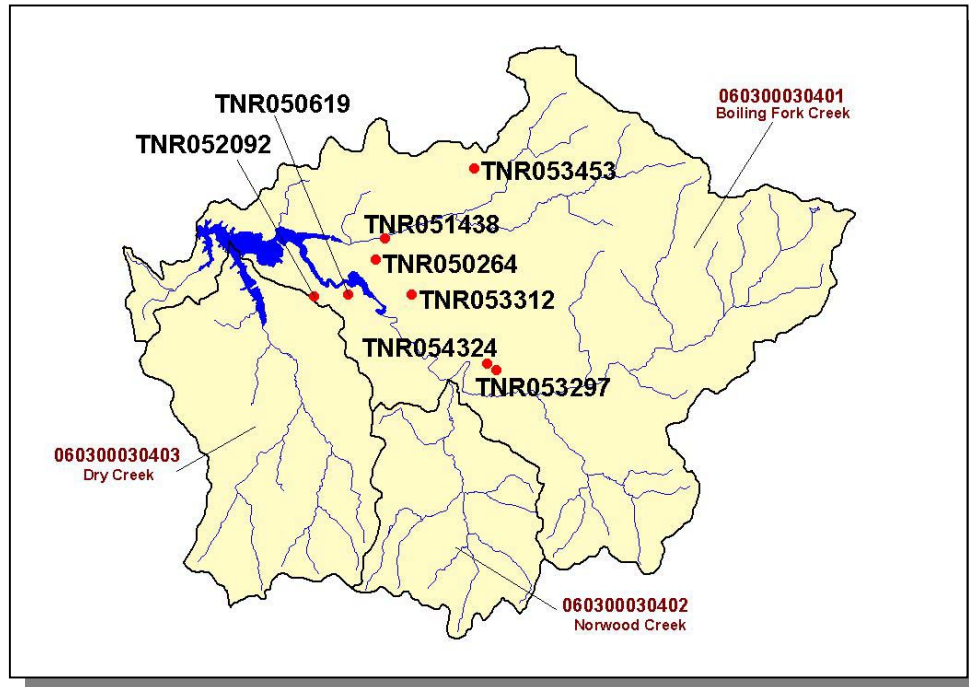


**Table 4-25. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 0603000304.** Subwatershed 060300030401, 060300030402, and 060300030403 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.

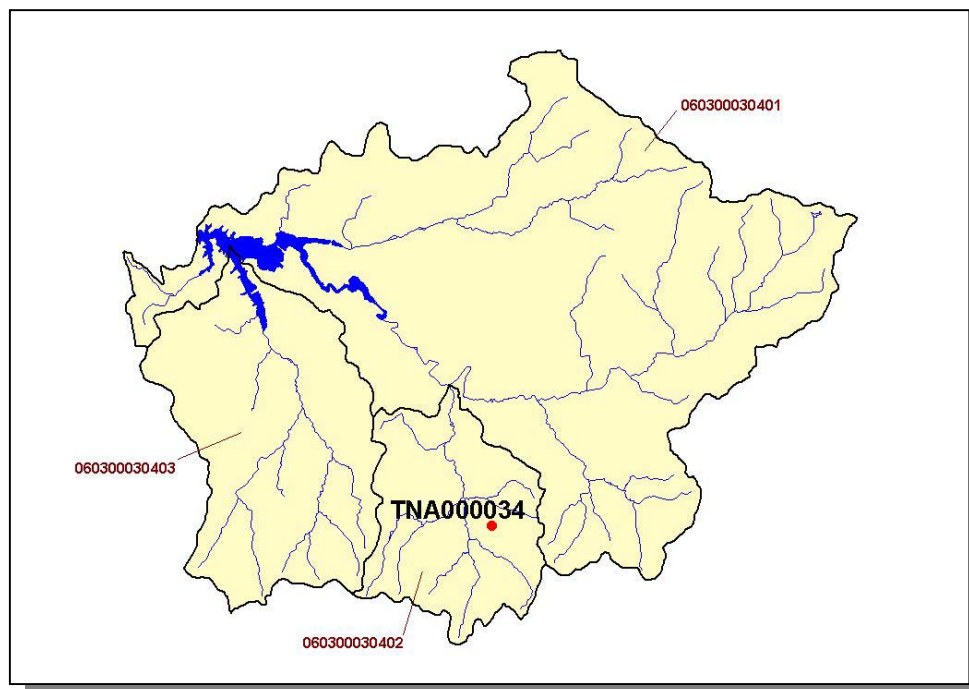


**Figure 4-45. Location of Active Mining Sites in Subwatershed 0602000206.** Subwatershed 060300030401, 060300030402, and 060300030403 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.

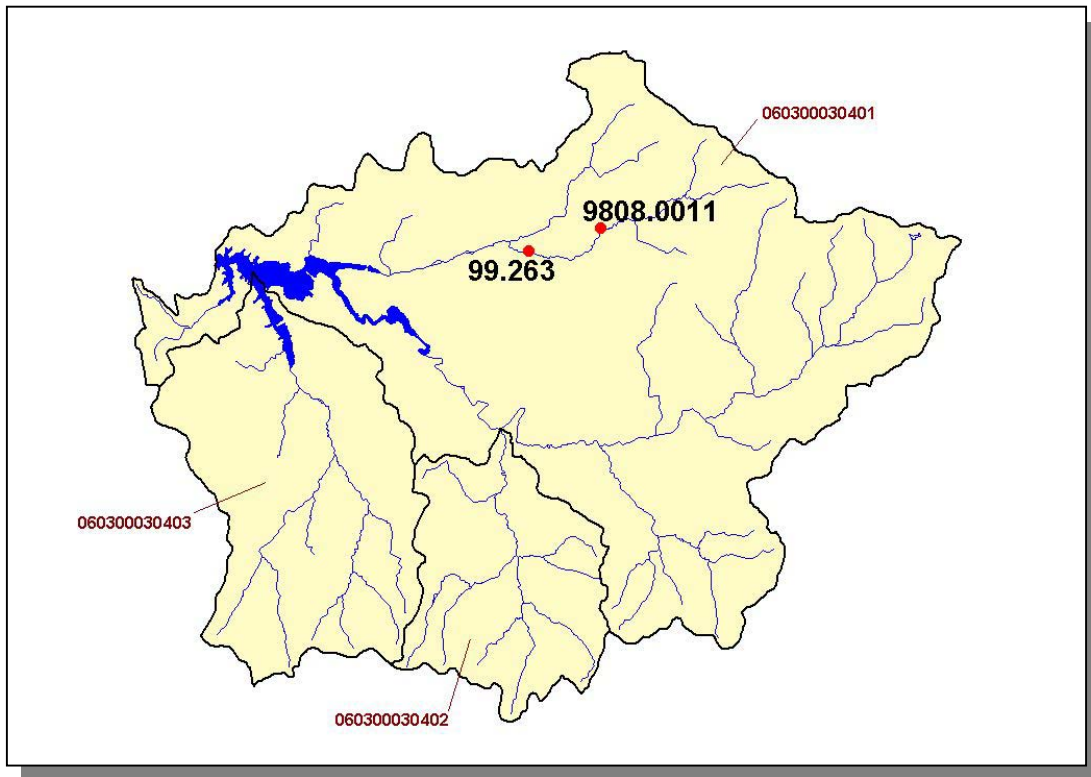




**Figure 4-46. Location of TMSP Facilities in Subwatershed 0603000304.** Subwatershed 060300030401, 060300030402, and 060300030403 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.



**Figure 4-47. Location of CAFO Facilities in Subwatershed 0603000304.** Subwatershed 060300030401, 060300030402, and 060300030403 boundaries are shown for reference. CAFO rules may be found at <http://cfpub.epa.gov/npdes/afo/cafofinalrule.cfm>. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.



**Figure 4-48. Location of ARAP Sites (Individual Permits) in Subwatershed 0603000304.** Subwatershed 060300030401, 060300030402, and 060300030403 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.



**4.2.D.iii.** Nonpoint Source Contributions.

<b>LIVESTOCK (COUNTS)</b>						
Beef Cow	Milk Cow	Cattle	Chickens	Chickens Sold	Hogs	Sheep
3,928	849	8,690	8	2,325,343	5,472	30

**Table 4-26. Summary of Livestock Count Estimates in Subwatershed 0603000304.** According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

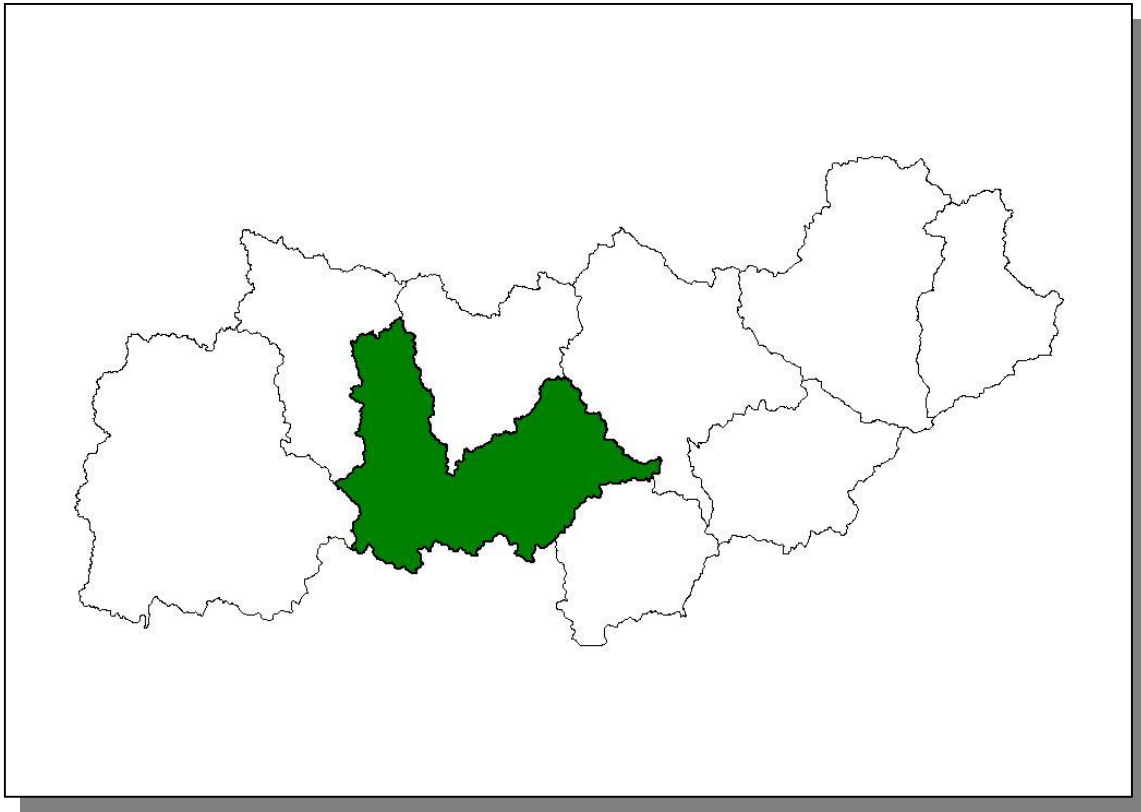
County	<b>INVENTORY</b>		<b>REMOVAL RATE</b>	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Franklin	183.4	183.0	6.0	28.7

**Table 4-27. Forest Acreage and Average Annual Removal Rates (1987-1994) in Subwatershed 0603000304.**

<b>CROPS</b>	<b>TONS/ACRE/YEAR</b>
Forest Land (Grazed)	0.00
Forest Land (Not Grazed)	0.00
Corn (Row Crops)	5.57
Soybeans (Row Crops)	3.88
Wheat (Close Grown Cropland)	5.55
All Other Close Grown Cropland	5.82
Legume (Hayland)	1.64
Grass (Pastureland)	0.32
Grass, Forbs, Legumes (Mixed Pasture)	0.52
Conservation Reserve Program Land	0.09
Other (Horticulture)	1.92
Other Cropland not Planted	2.04
Non Agricultural Land Use	0.00
Farmsteads and Ranch Headquarters	0.13

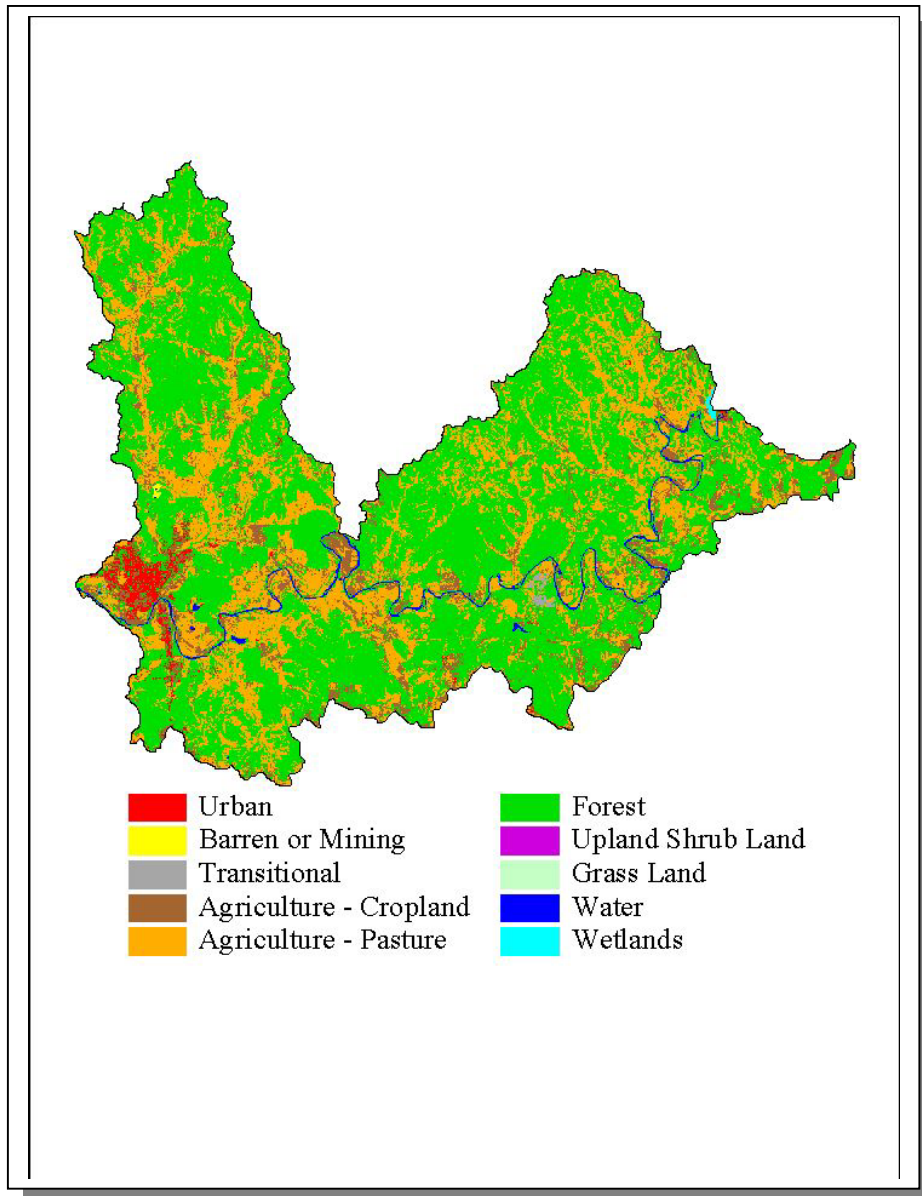
**Table 4-28. Annual Soil Loss in Subwatershed 0603000304.**

**4.2.E. 0603000305.**

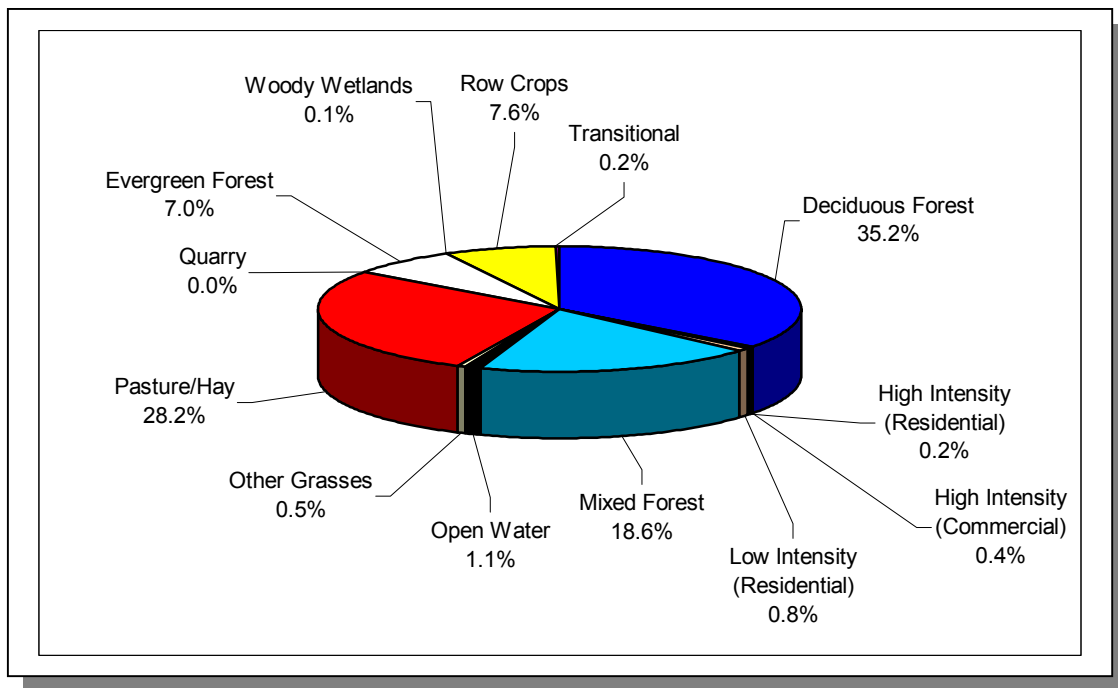


**Figure 4-49. Location of Subwatershed 0603000305.** All Upper Elk HUC-10 subwatershed boundaries are shown for reference.

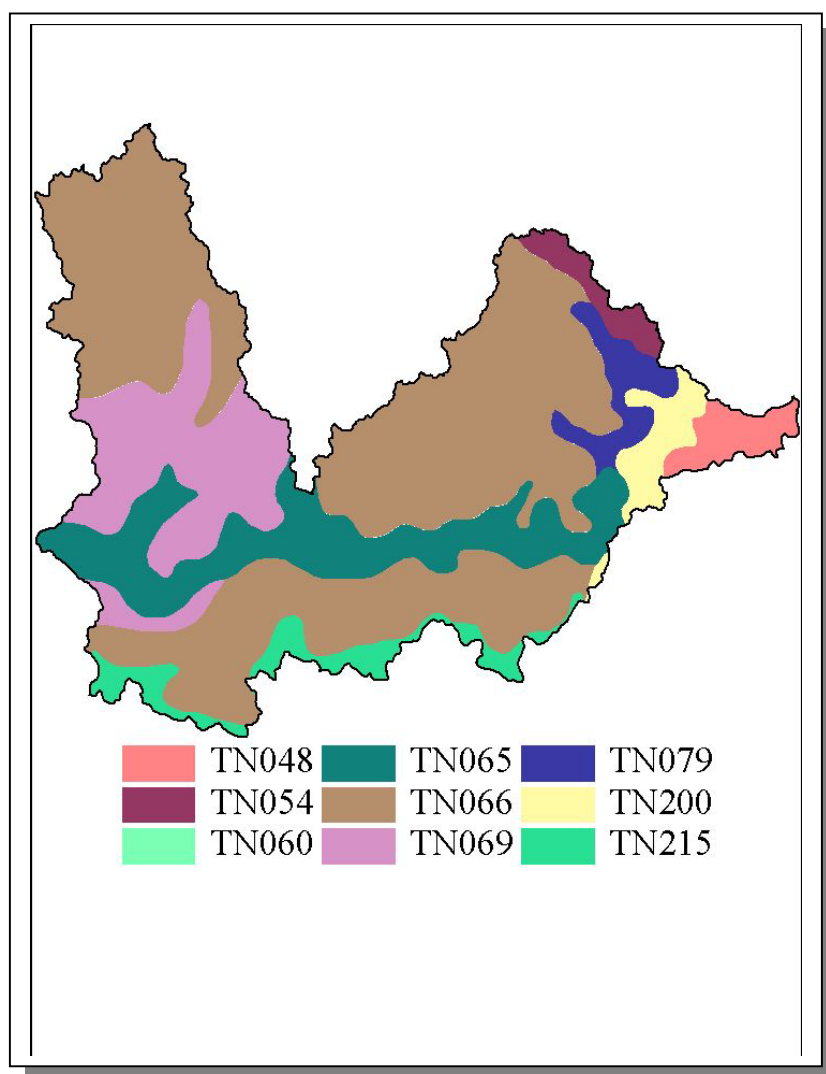
4.2.E.i. General Description.



*Figure 4-50. Illustration of Land Use Distribution in Subwatershed 0603000305.*



**Figure 4-51. Land Use Distribution in Subwatershed 0603000305.** More information is provided in Upper Elk-Appendix IV.



**Figure 4-52. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0603000305.**

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hr)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN048	8.00	C	1.38	5.06	Silty Loam	0.42
TN054	0.00	C	3.04	4.84	Loam	0.32
TN060	5.00	B	1.30	5.32	Silty Loam	0.39
TN065	0.00	C	1.15	5.52	Loam	0.32
TN066	0.00	B	2.62	4.75	Loam	0.28
TN069	0.00	C	2.06	5.36	Loam	0.34
TN079	8.00	C	1.30	5.66	Silty Loam	0.35
TN200	1.00	B	2.81	5.28	Loam	0.31
TN215	9.00	C	1.57	5.02	Silty Loam	0.39

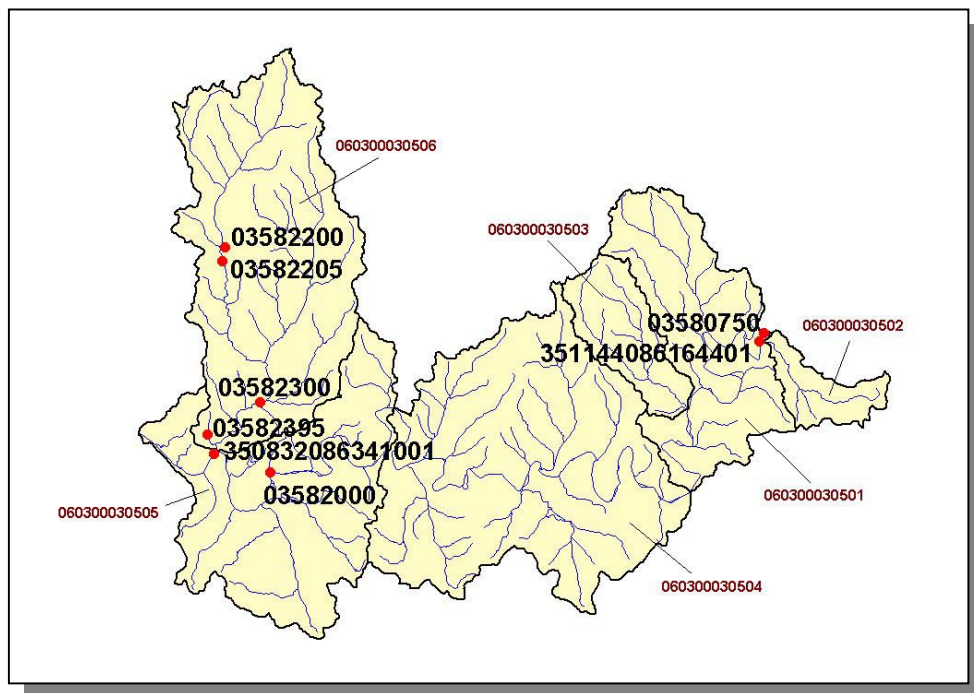
**Table 4-29. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0603000305.** More information is provided in Upper Elk-Appendix IV.

County	COUNTY POPULATION		Portion of Watershed (%)	ESTIMATED POPULATION IN WATERSHED		PERCENT CHANGE
	1990	1997 Est.		1990	1997	
Franklin	34,725	37,152	2.31	801	857	7.0
Lincoln	28,157	29,336	23.5	6,617	6,894	4.2
Moore	4,721	5,205	22.78	1,076	1,186	10.2
<b>Total</b>	<b>67,603</b>	<b>71,693</b>		<b>8,494</b>	<b>8,937</b>	<b>5.2</b>

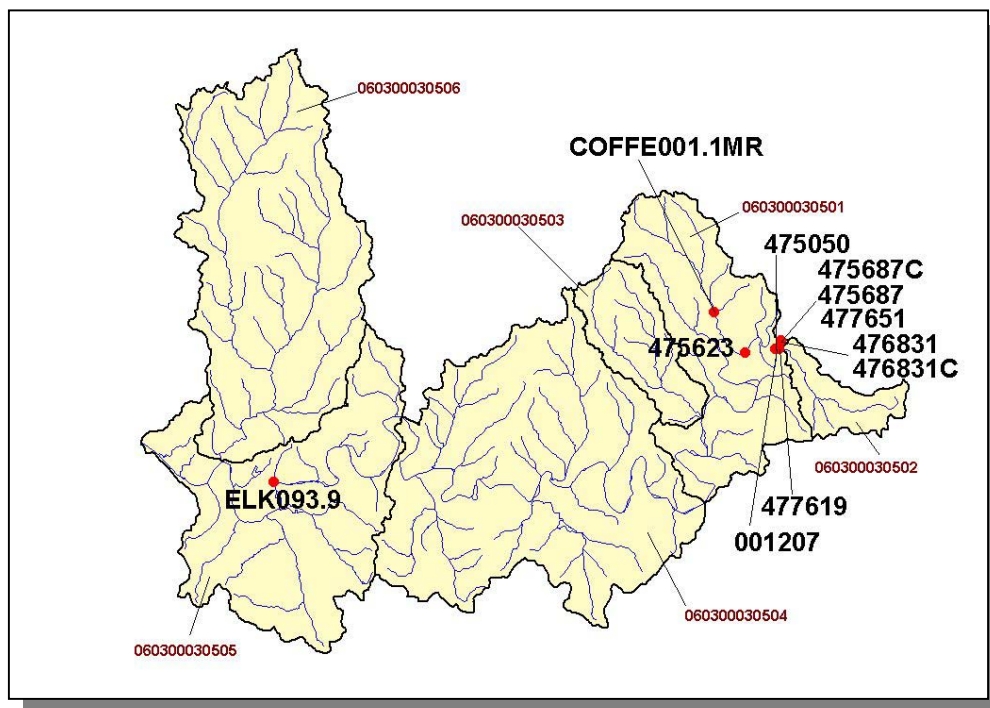
*Table 4-30. Population Estimates in Subwatershed 0603000305.*

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Fayetteville	Lincoln	6,921	3,277	3,168	99	10

*Table 4-31. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 0603000305.*



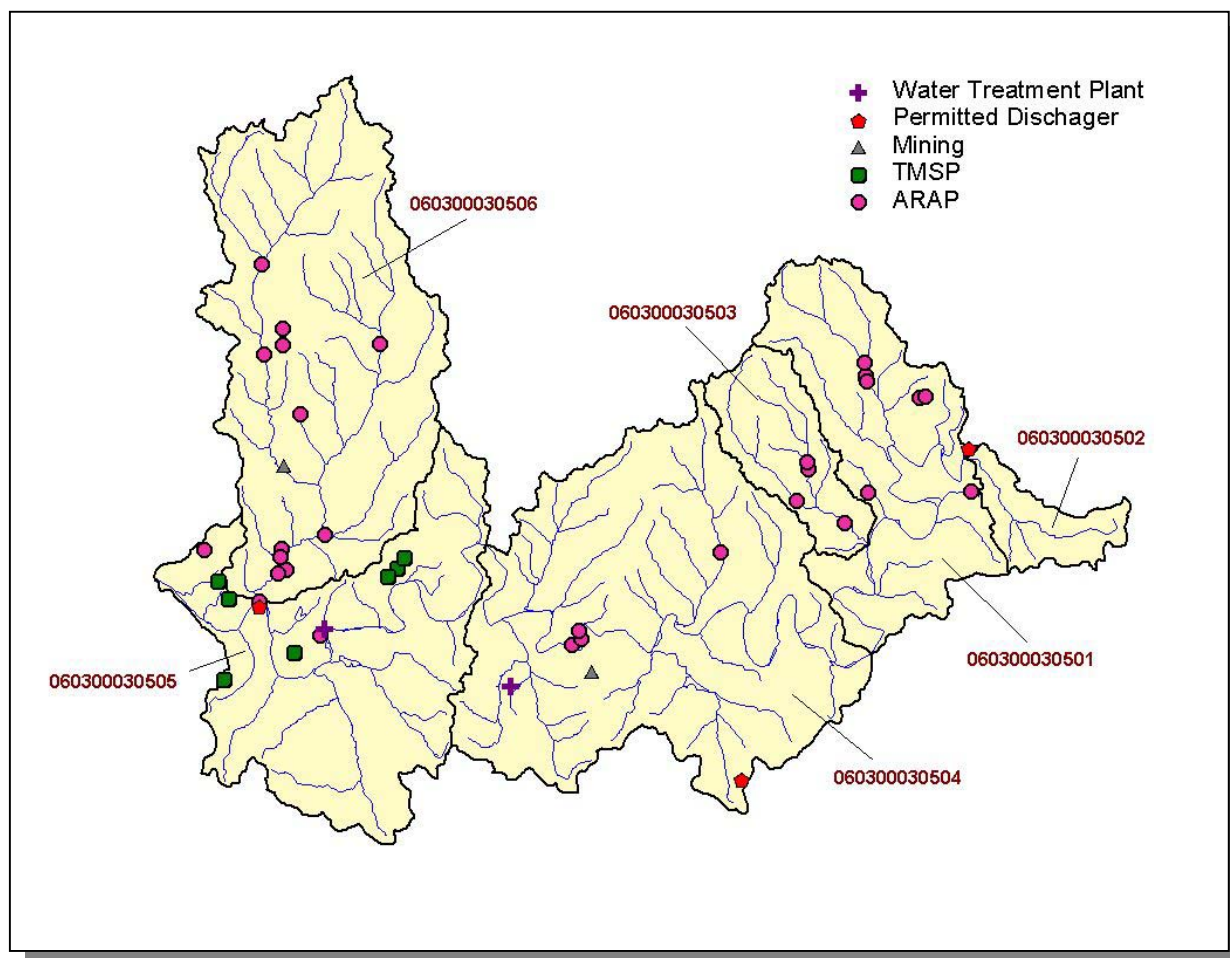
**Figure 4-53. Location of Historical Streamflow Data Collection Sites in Subwatershed 060300030505.** Subwatershed 060300030501, 060300030502, 060300030503, 060300030504, 060300030505, and 060300030506 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.



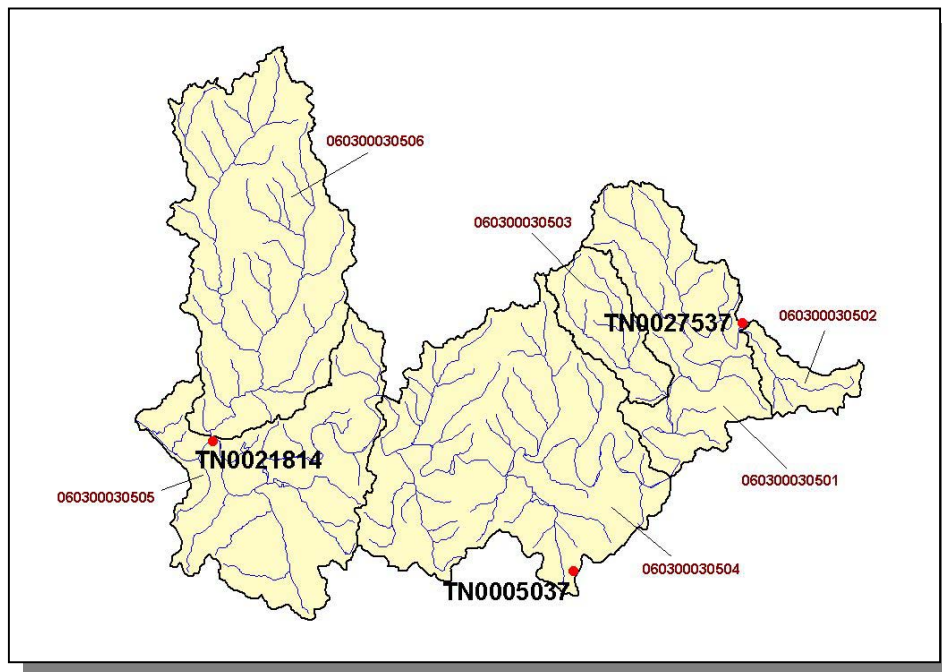
**Figure 4-54. Location of STORET Monitoring Sites in Subwatershed 060300030505.** Subwatershed 060300030501, 060300030502, 060300030503, 060300030504, 060300030505, and 060300030506 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.



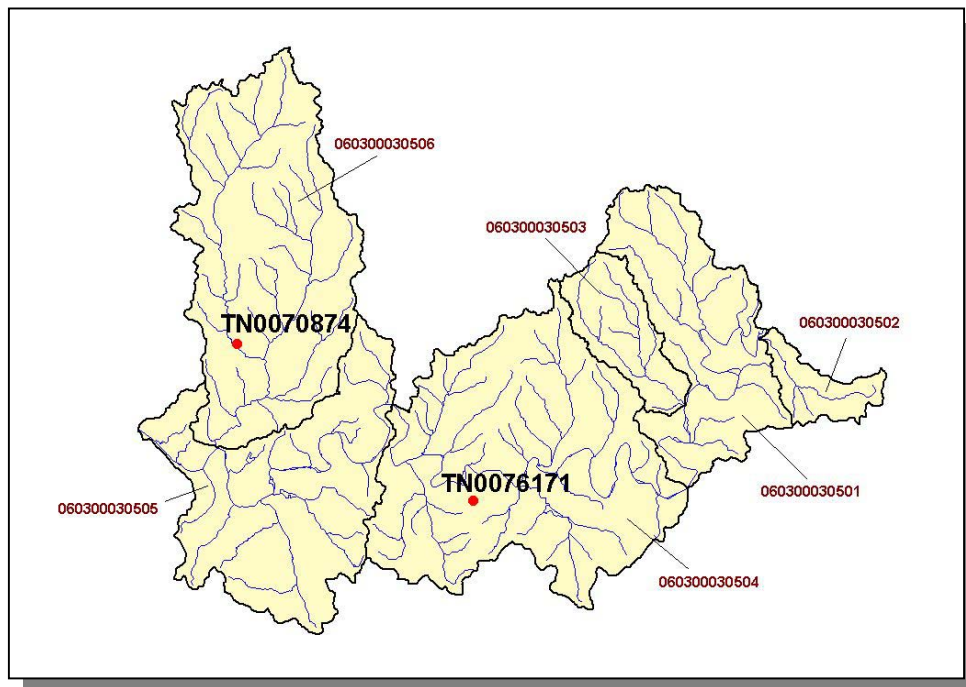
**4.2.E.ii.** Point Source Contributions.



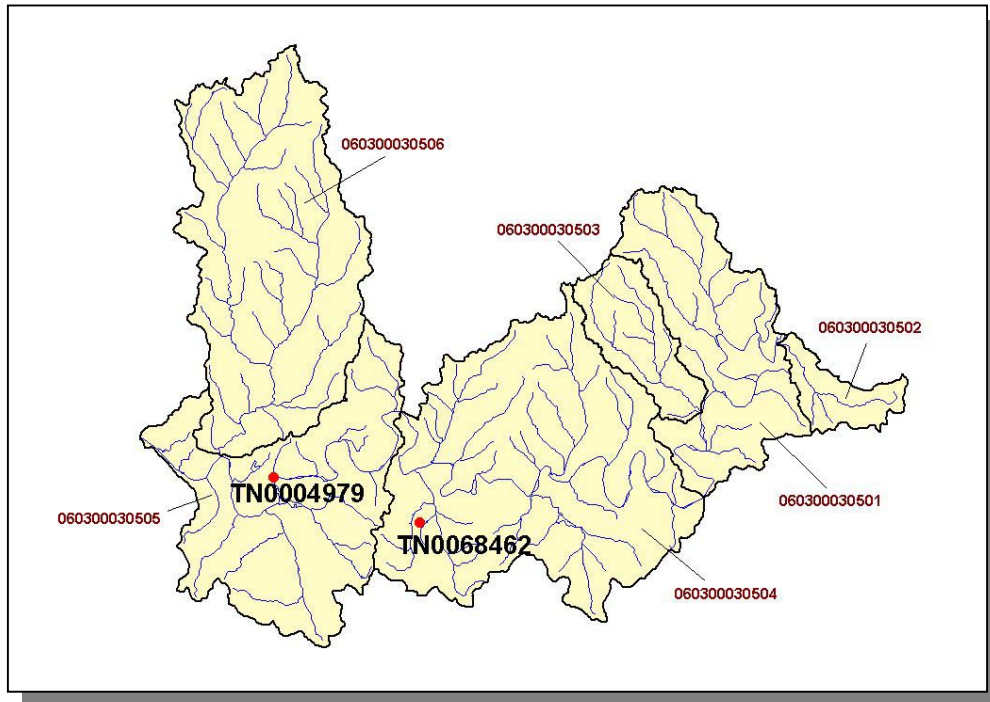
**Figure 4-55. Location of Active Point Source Facilities in Subwatershed 0603000305.** Subwatershed 060300030501, 060300030502, 060300030503, 060300030504, 060300030505, and 060300030506 boundaries are shown for reference. More information is provided in the following charts.



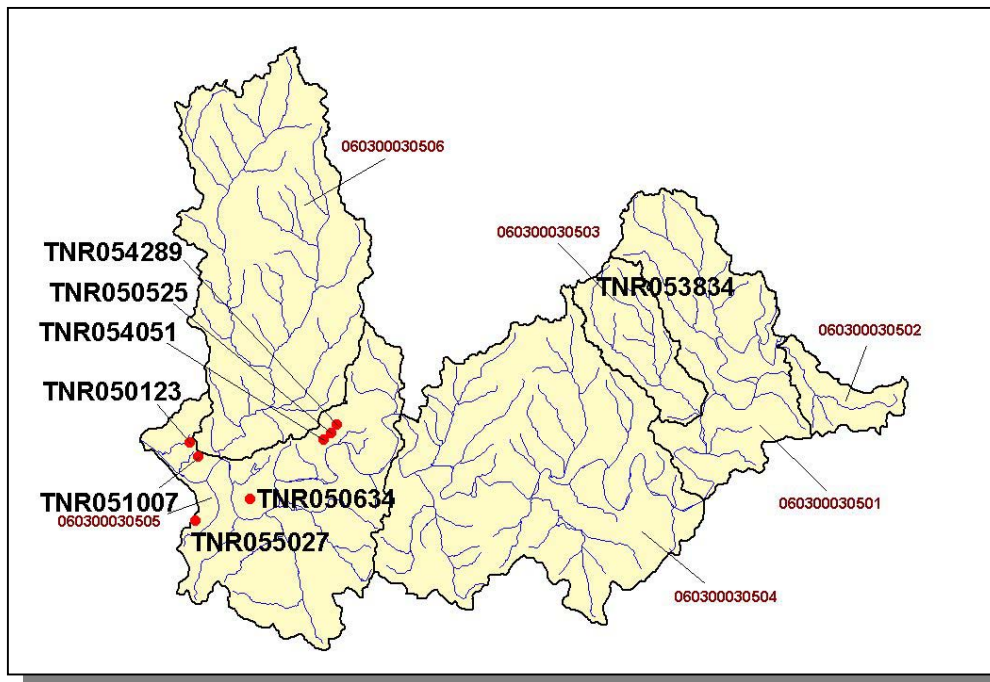
**Figure 4-56. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 0603000305.** Subwatershed 060300030501, 060300030502, 060300030503, 060300030504, 060300030505, and 060300030506 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.



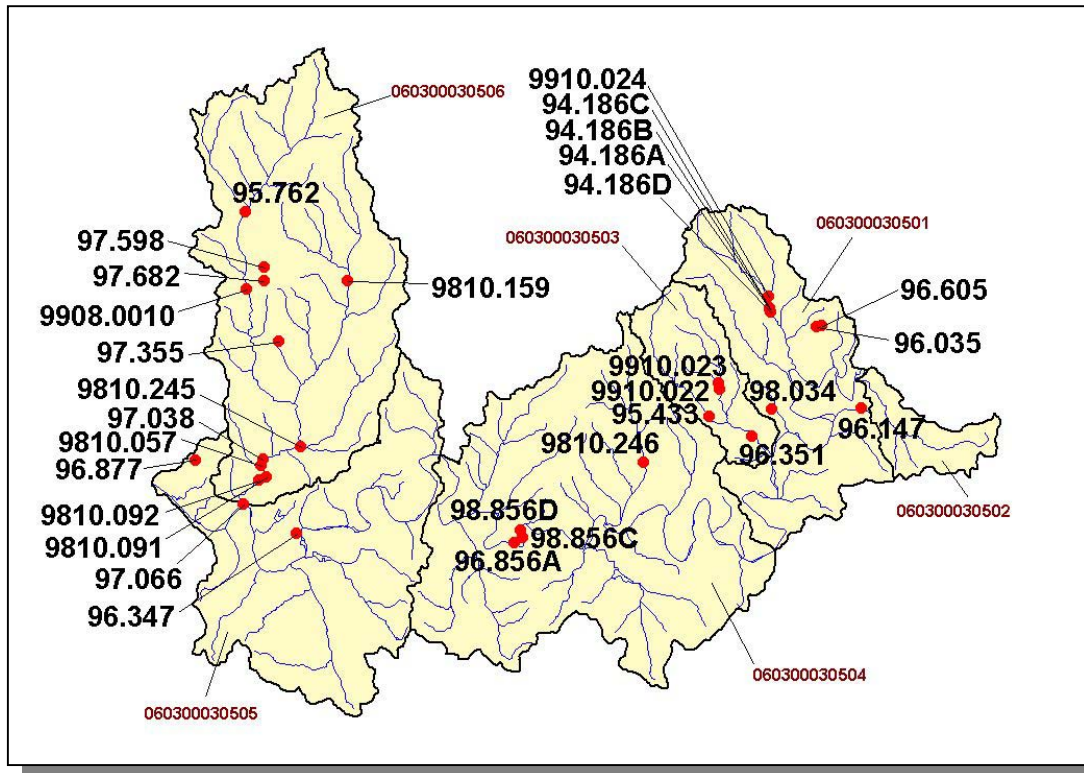
**Figure 4-57. Location of Active Mining Sites in Subwatershed 0603000305.** Subwatershed 060300030501, 060300030502, 060300030503, 060300030504, 060300030505, and 060300030506 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.



**Figure 4-58. Location of Water Treatment Plant Sites in Subwatershed 0603000305.** Subwatershed 060300030501, 060300030502, 060300030503, 060300030504, 060300030505, and 060300030506 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.



**Figure 4-59. Location of TMSP Facilities in Subwatershed 0603000305.** Subwatershed 060300030501, 060300030502, 060300030503, 060300030504, 060300030505, and 060300030506 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.



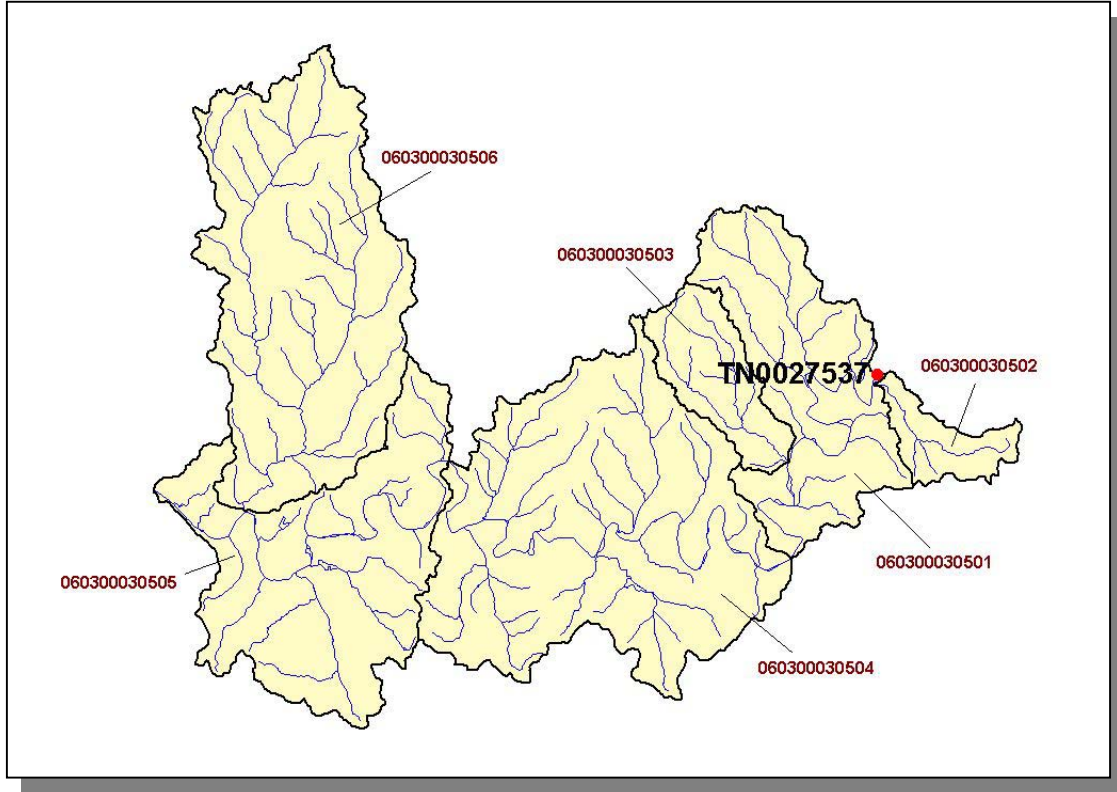
**Figure 4-60. Location of ARAP Sites (Individual Permits) in Subwatershed 0603000305.** Subwatershed 060300030501, 060300030502, 060300030503, 060300030504, 060300030505, and 060300030506 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.



#### 4.2.E.ii.a. Dischargers to Water Bodies Listed on the 1998 303(d) List

There is one NPDES facility discharging to water bodies listed on the 1998 303(d) list in Subwatershed 0603000305:

- TN0027537 (TVA Tim's Ford Hydro Plant) discharges to Elk River @ RM 133.3



**Figure 4-61. Location of NPDES Dischargers to Water Bodies Listed on the 1998 303(d) List in Subwatershed 0603000305.** Subwatershed 060300030501, 060300030502, 060300030503, 060300030504, 060300030505, and 060300030506 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.

PERMIT #	1Q10	3Q10	7Q10	3Q20	QDESIGN
TN0027537					Varies by Outfall

**Table 4-32. Receiving Stream Flow Information for NPDES Dischargers to Waterbodies.** Listed on the 1998 303(d) List in Subwatershed 0603000305.

PERMIT #	PCB	SETTLABLE SOLIDS
TN0027537	X	X

**Table 4-33. Parameters Monitored for Daily Maximum (mg/L) Limits for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 0603000302.** PCB, Polychlorinated Biphenyl.

**4.2.E.iii.** Nonpoint Source Contributions.

<b>LIVESTOCK (COUNTS)</b>						
Beef Cow	Milk Cow	Cattle	Chickens	Chickens Sold	Hogs	Sheep
8,699	1,162	17,690	17	1,929,871	1,375	115

**Table 4-34. Summary of Livestock Count Estimates in Subwatershed 0603000305.** According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

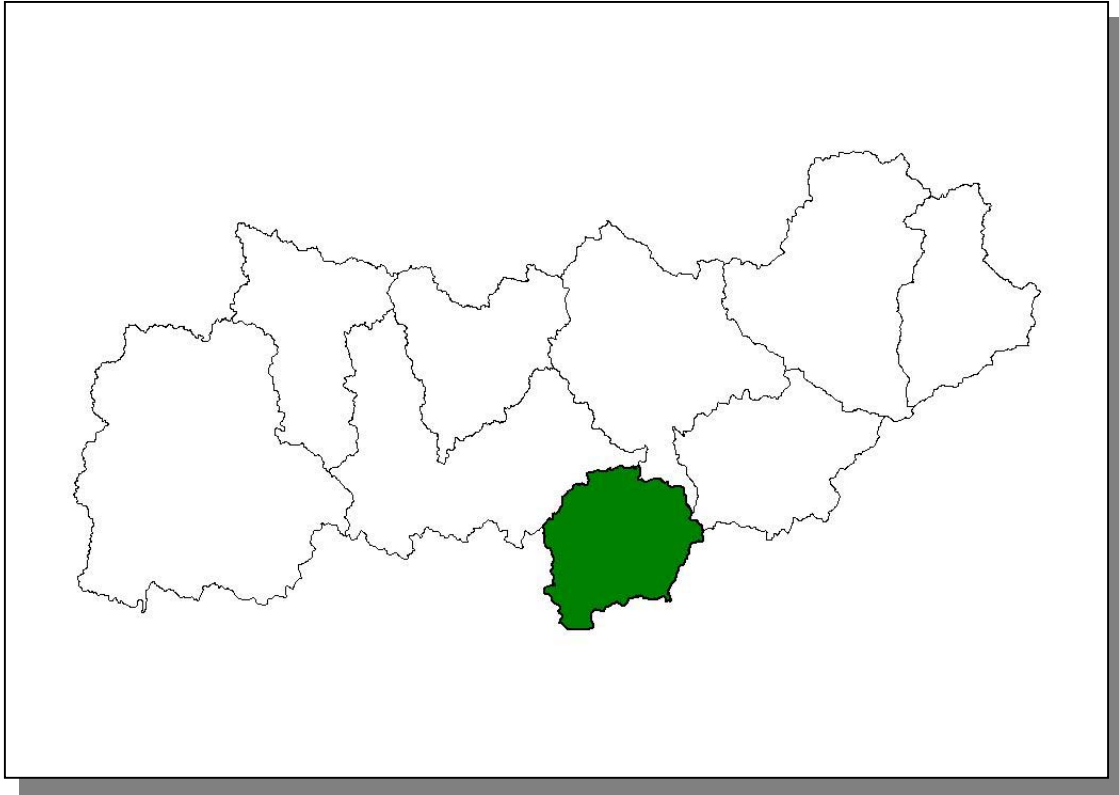
County	<b>INVENTORY</b>		<b>REMOVAL RATE</b>	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Franklin	183.4	183.0	6.0	28.7
Lincoln	136.7	136.7	1.1	3.2
Moore	36.6	36.6	0.0	0.0
<b>Totals</b>	<b>356.7</b>	<b>356.3</b>	<b>7.1</b>	<b>31.9</b>

**Table 4-35. Forest Acreage and Annual Removal Rates (1987-1994) in Subwatershed 0603000305.**

<b>CROPS</b>	<b>TONS/ACRE/YEAR</b>
Corn (Row Crops)	3.88
Soybeans (Row Crops)	6.92
Potatoes (Row Crops)	3.04
Tobacco (Row Crops)	9.27
Grass (Pastureland)	1.23
Grass, Forbs, Legumes (Mixed Pasture)	1.10
Grass (Hayland)	0.41
Legume (Hayland)	0.26
Legume/Grass (Hayland)	0.38
Forest Land (Grazed)	0.00
Forest Land (Not Grazed)	0.00
Wheat (Close Grown Cropland)	3.48
Other Close Grown Cropland	5.82
Fruit (Horticultural)	0.09
Other (Horticulture)	1.92
Other Vegetable and Truck Crops	2.52
Other Land in Farms	0.28
Conservation Reserve Program Land	0.28
Other Cropland not Planted	2.04
Non Agricultural Land Use	0.00
Farmsteads and Ranch Headquarters	0.35

**Table 4-36. Annual Estimated Soil Loss in Subwatershed 0603000305.**

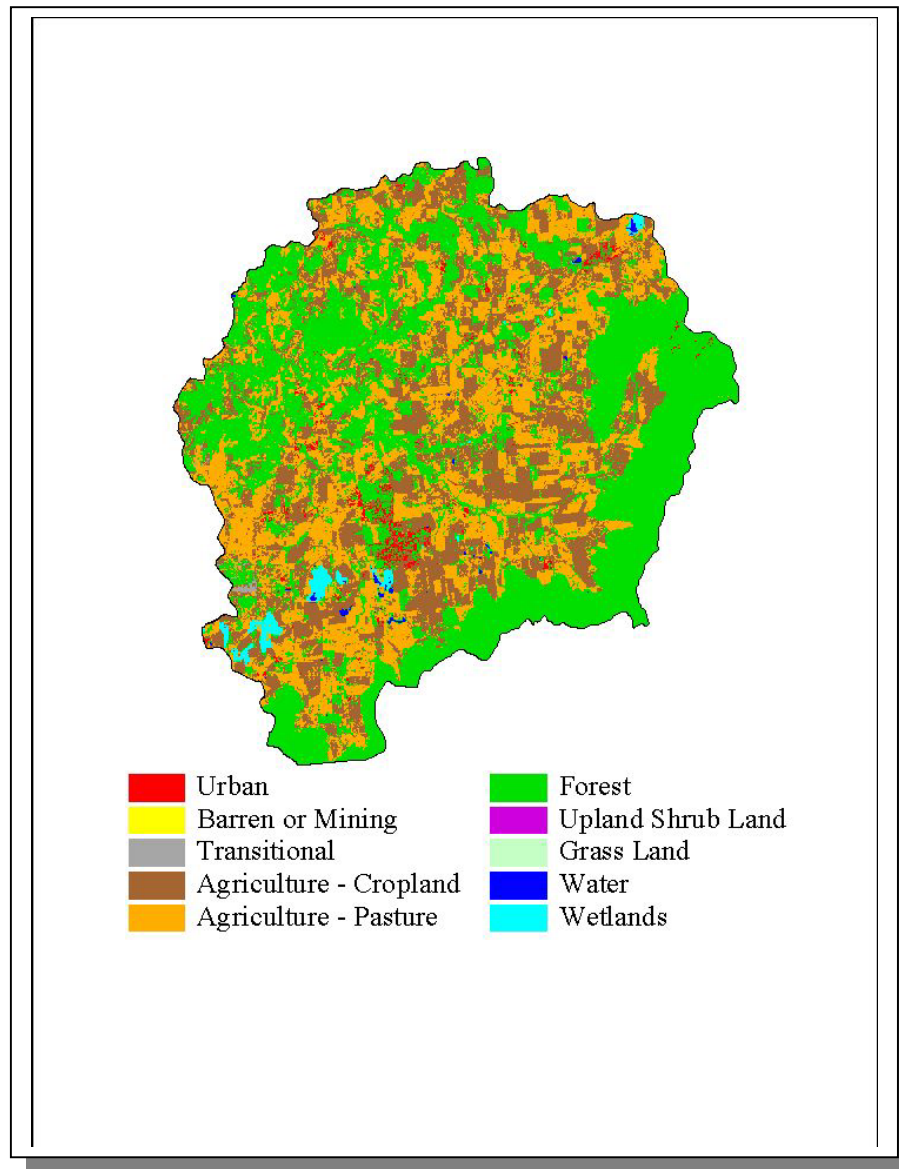
**4.2.F. 0603000306**



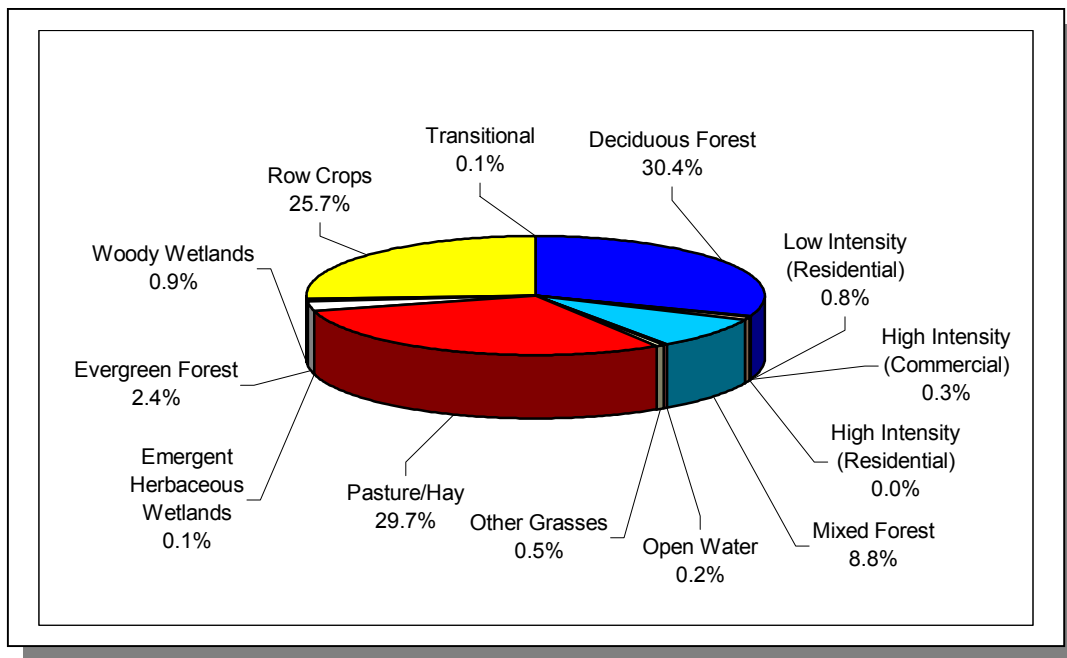
**Figure 4-62. Location of Subwatershed 0603000306.** All Upper Elk HUC-10 subwatershed boundaries are shown for reference.



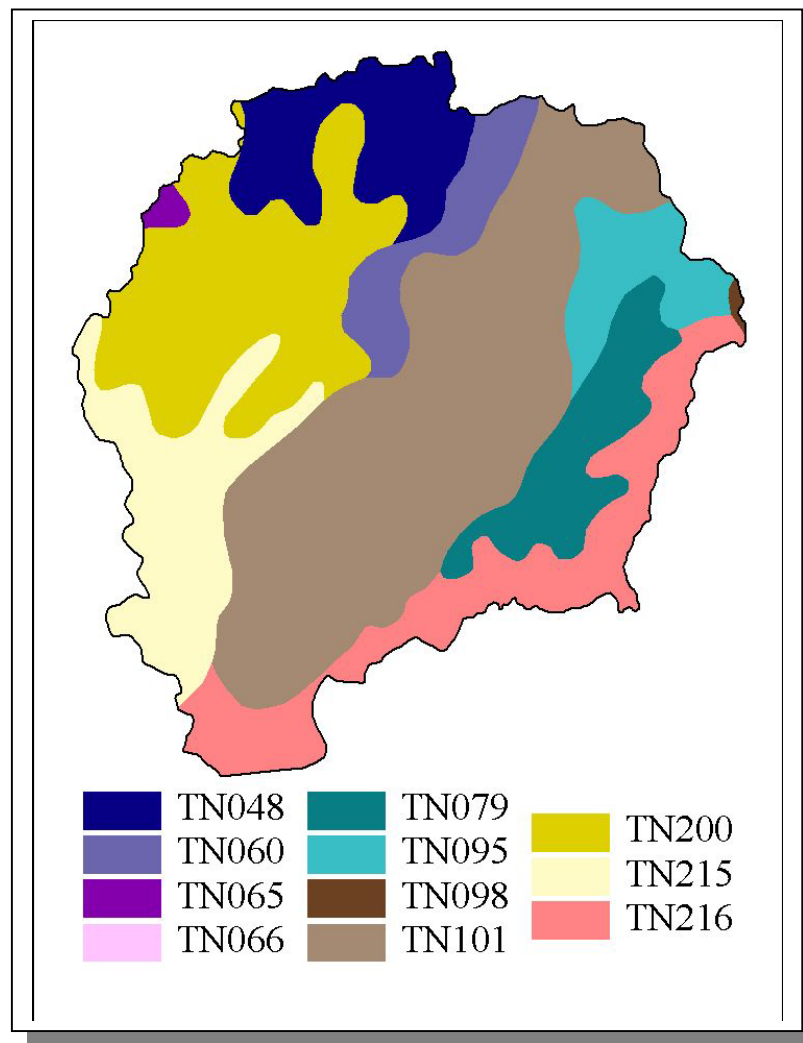
4.2.F.i. General Description.



*Figure 4-63. Illustration of Land Use Distribution in Subwatershed 0603000306.*



**Figure 4-64. Land Use Distribution in Subwatershed 0603000306.** More information is provided in Upper Elk-Appendix IV.



**Figure 4-65. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0603000306.**

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hr)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN048	8.00	C	1.38	5.06	Silty Loam	0.42
TN060	5.00	B	1.30	5.32	Silty Loam	0.39
TN065	0.00	C	1.15	5.52	Loam	0.32
TN066	0.00	B	2.62	4.75	Loam	0.28
TN079	8.00	C	1.30	5.66	Silty Loam	0.35
TN095	0.00	B	2.35	5.12	Loam	0.31
TN098	1.00	C	3.98	4.82	Loam	0.32
TN101	0.00	B	1.71	5.39	Loam	0.35
TN200	1.00	B	2.81	5.28	Loam	0.31
TN215	9.00	C	1.57	5.02	Silty Loam	0.39
TN216	0.00	C	2.51	4.59	Loam	0.25

**Table 4-37. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0603000306.** More information is provided in Upper Elk-Appendix IV.

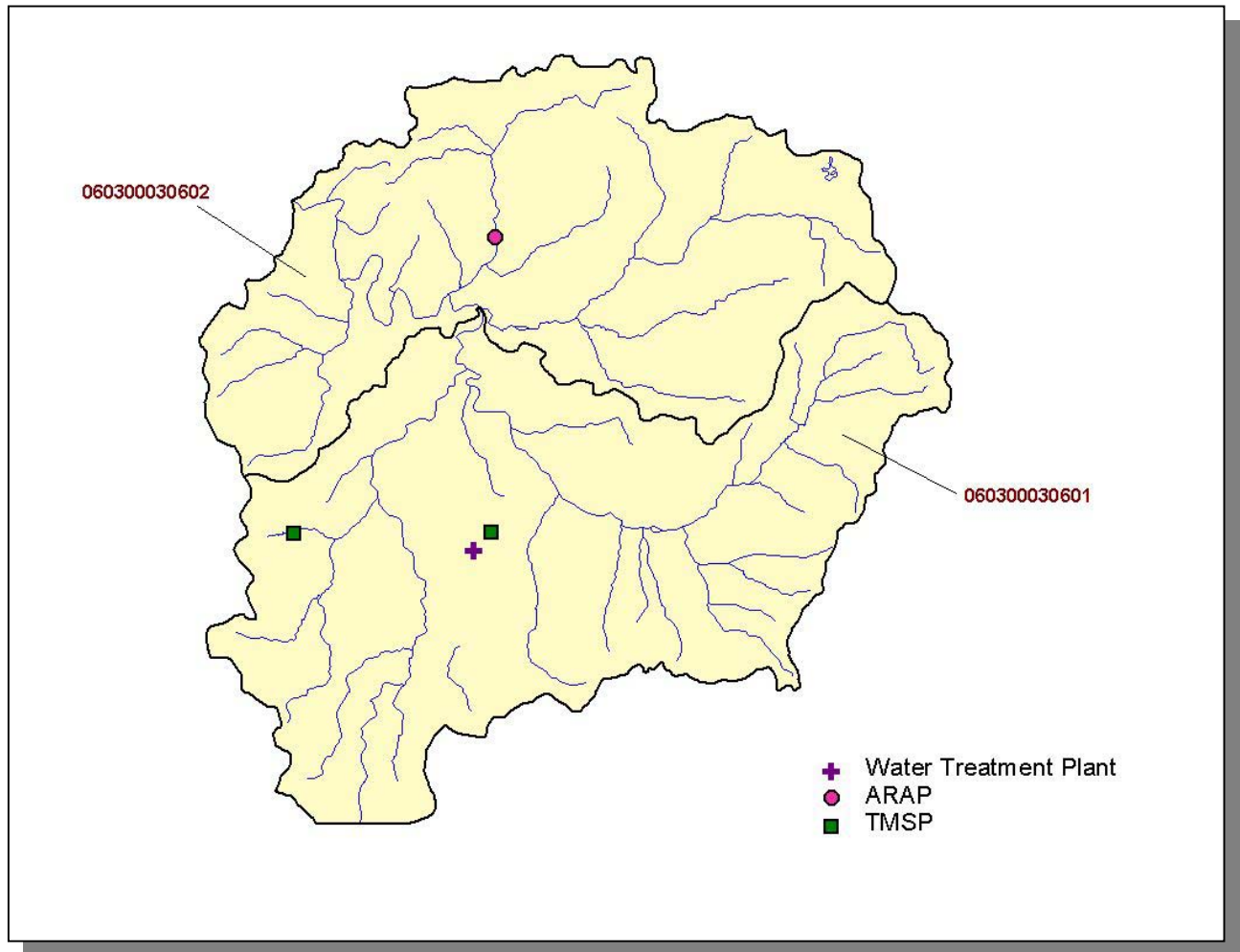
County	TOTAL COUNTY POPULATION		Portion of Watershed (%)	ESTIMATED POPULATION IN WATERSHED		PERCENT CHANGE
	1990	1997 Est.		1990	1997	
Franklin	34,725	37,152	13.41	4,658	4,984	7.0
Lincoln	28,157	29,336	1.66	467	486	4.1
Moore	4,721	5,205	0.11	5	6	20.0
<b>Totals</b>	<b>67,603</b>	<b>71,693</b>		<b>5,130</b>	<b>5,476</b>	<b>6.7</b>

*Table 4-38. Population Estimates in Subwatershed 0603000306.*

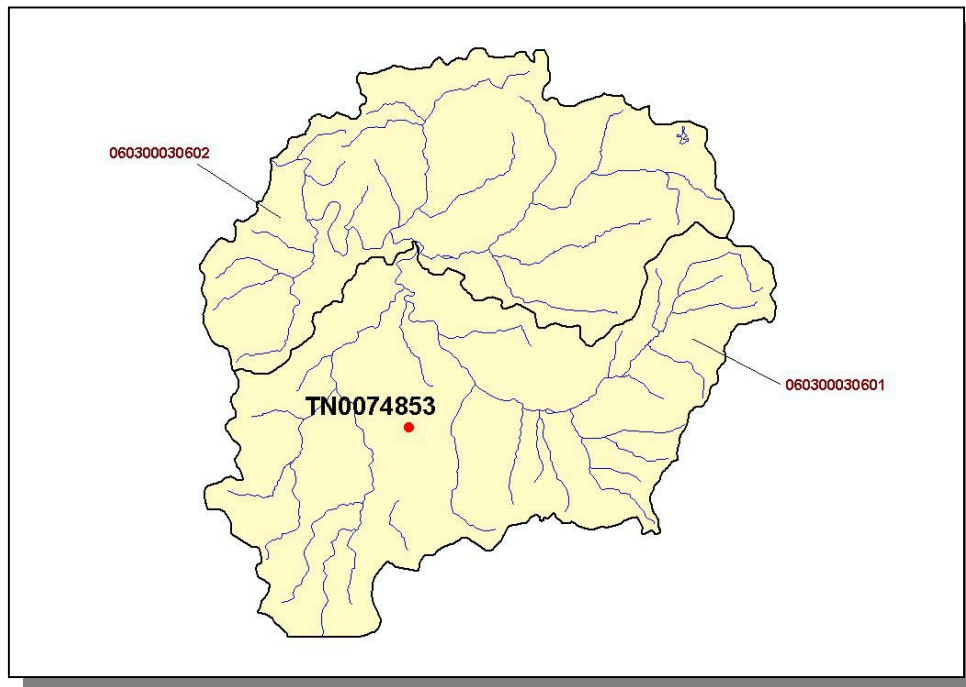
			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Huntland	Franklin	885	367	35	332	0

*Table 4-39. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 0603000306.*

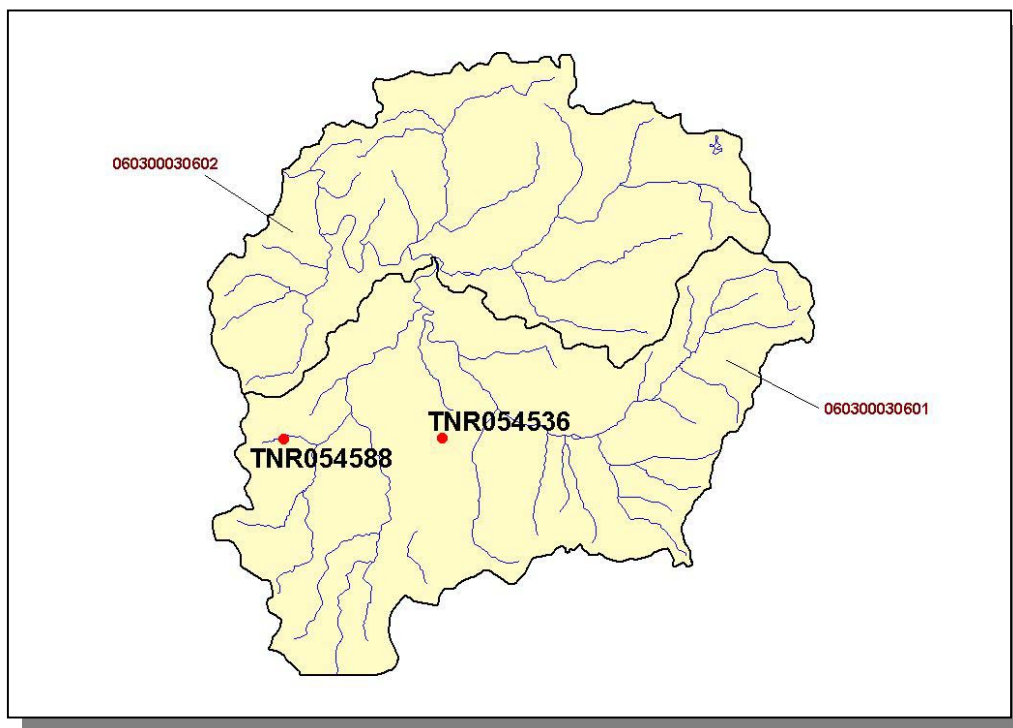
**4.2.F.ii.** Point Source Contributions.



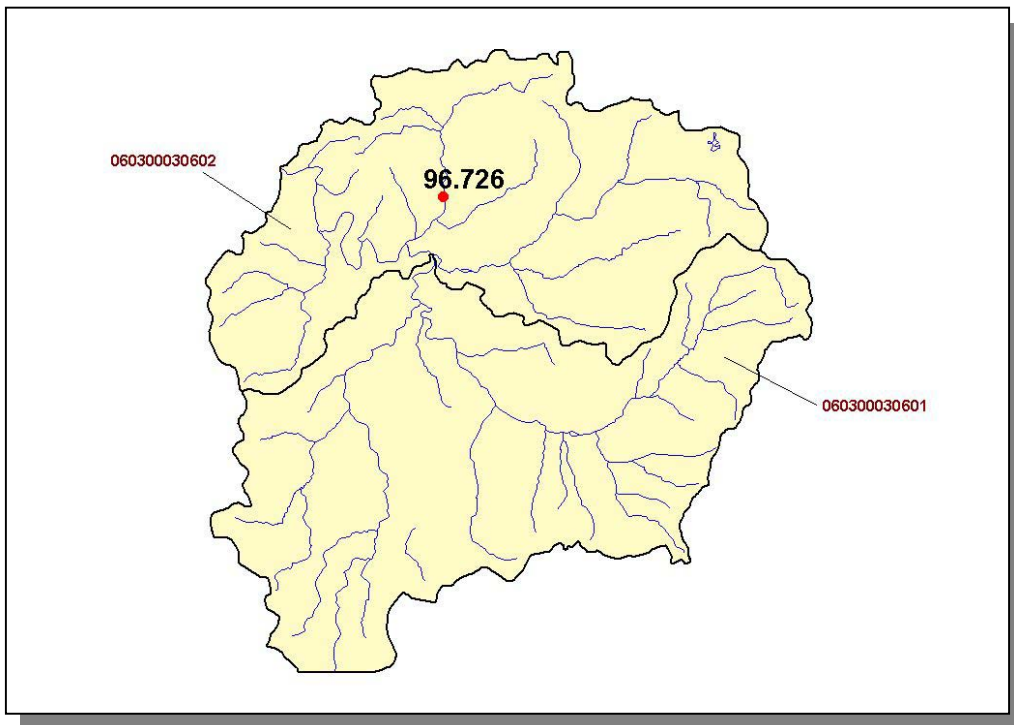
**Figure 4-66. Location of Active Point Source Facilities in Subwatershed 0603000306.** Subwatershed 060300030601 and 060300030602 boundaries are shown for reference. More information is provided in the following charts.



**Figure 4-67. Location of Water Treatment Plant Sites in Subwatershed 0603000306.** Subwatershed 060300030601 and 060300030602 boundaries are shown for refere. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.



**Figure 4-68. Location of TMSP Facilities in Subwatershed 0603000306.** Subwatershed 060300030601 and 060300030602 boundaries are shown for refere. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.



**Figure 4-69. Location of ARAP Sites (Individual Permits) in Subwatershed 0603000306.** Subwatershed 060300030601 and 060300030602 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.



**4.2.F.iii. Nonpoint Source Contributions.**

<b>LIVESTOCK (COUNTS)</b>						
Beef Cow	Milk Cow	Cattle	Chickens	Chickens Sold	Hogs	Sheep
3,692	748	8,059	7	1,973,379	4,449	31

**Table 4-40. Summary of Livestock Count Estimates in Subwatershed 0603000306.** According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

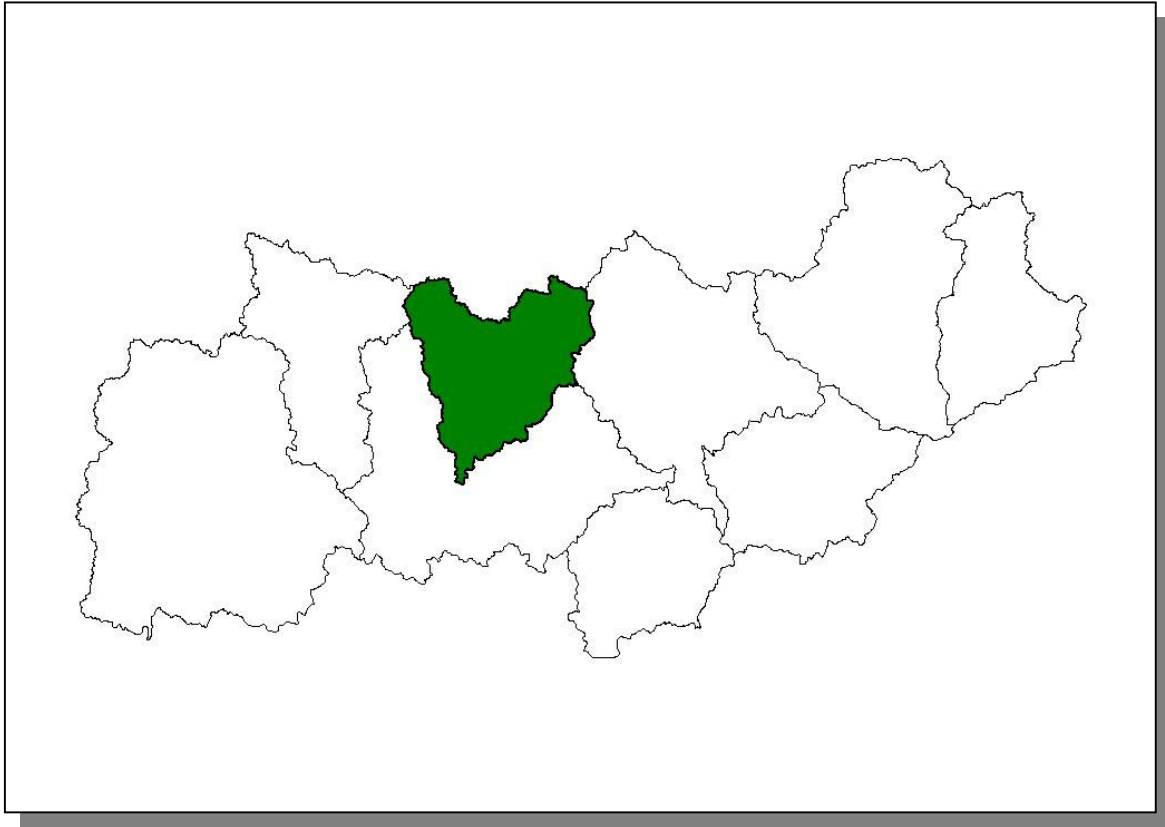
County	<b>INVENTORY</b>		<b>REMOVAL RATE</b>	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Franklin	183.4	183.0	6.0	28.7
Lincoln	136.7	136.7	1.1	3.2
Moore	36.6	36.6	0.0	0.0
<b>Total</b>	<b>356.7</b>	<b>356.3</b>	<b>7.1</b>	<b>31.9</b>

**Table 4-41. Forest Acreage and Average Annual Removal Rates (1987-1994) in Subwatershed 0603000306.**

<b>CROPS</b>	<b>TONS/ACRE/YEAR</b>
Grass (Hayland)	0.23
Legume (Hayland)	1.47
Legume/Grass (Hayland)	0.37
Grass (Pastureland)	0.42
Grass, Forbs, Legumes (Mixed (Pasture)	0.57
Forest Land (Grazed)	0.00
Forest Land (Not Grazed)	0.00
Soybeans (Row Crops)	4.26
Corn (Row Crops)	5.36
Tobacco (Row Crops)	9.27
Potatoes (Row Crops)	3.04
Wheat (Close Grown Cropland)	5.29
Other Close Grown Cropland	5.82
Fruit (Horticulture)	0.09
Other (Horticulture)	1.92
Other Vegetable and Truck Crop	2.52
Conservation Reserve Program Land	0.11
Other Cropland not Planted	2.04
Non Agricultural Land Use	0.00
Farmsteads and Ranch Headquarters	0.16
Other Land in Farms	0.28

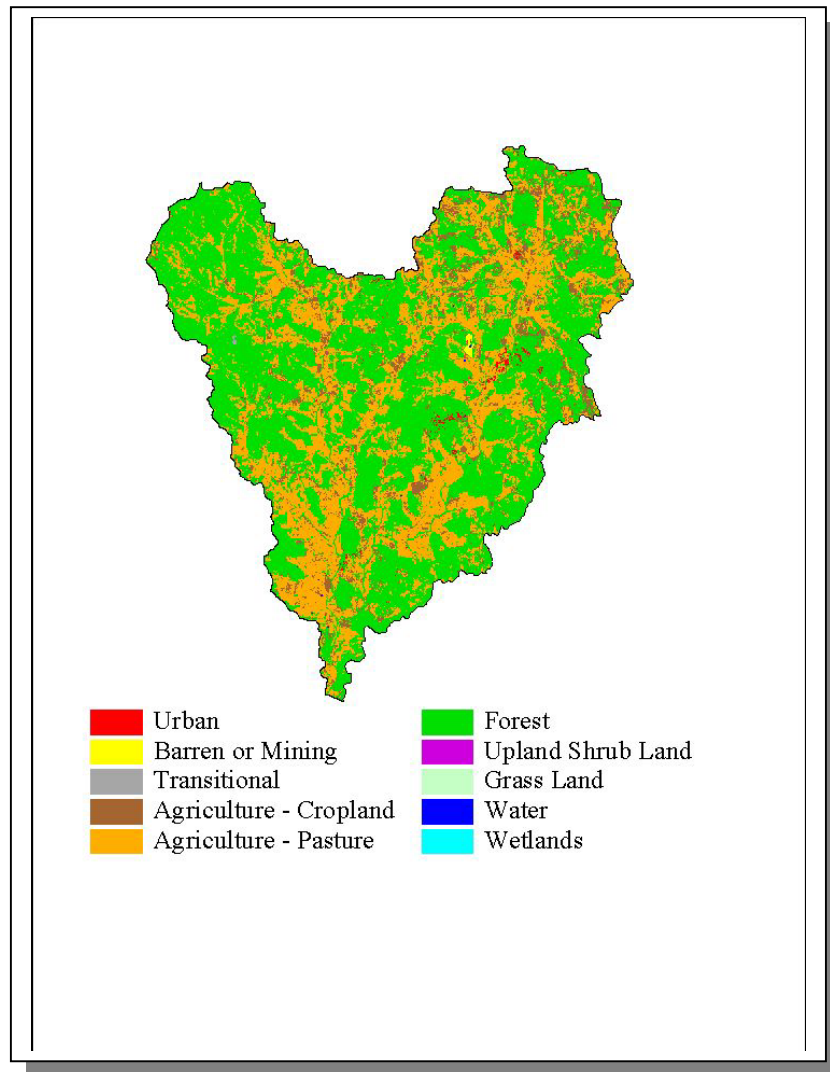
**Table 4-42. Annual Estimated Total Soil Loss in Subwatershed 0603000306.**

**4.2.G. 0603000307.**

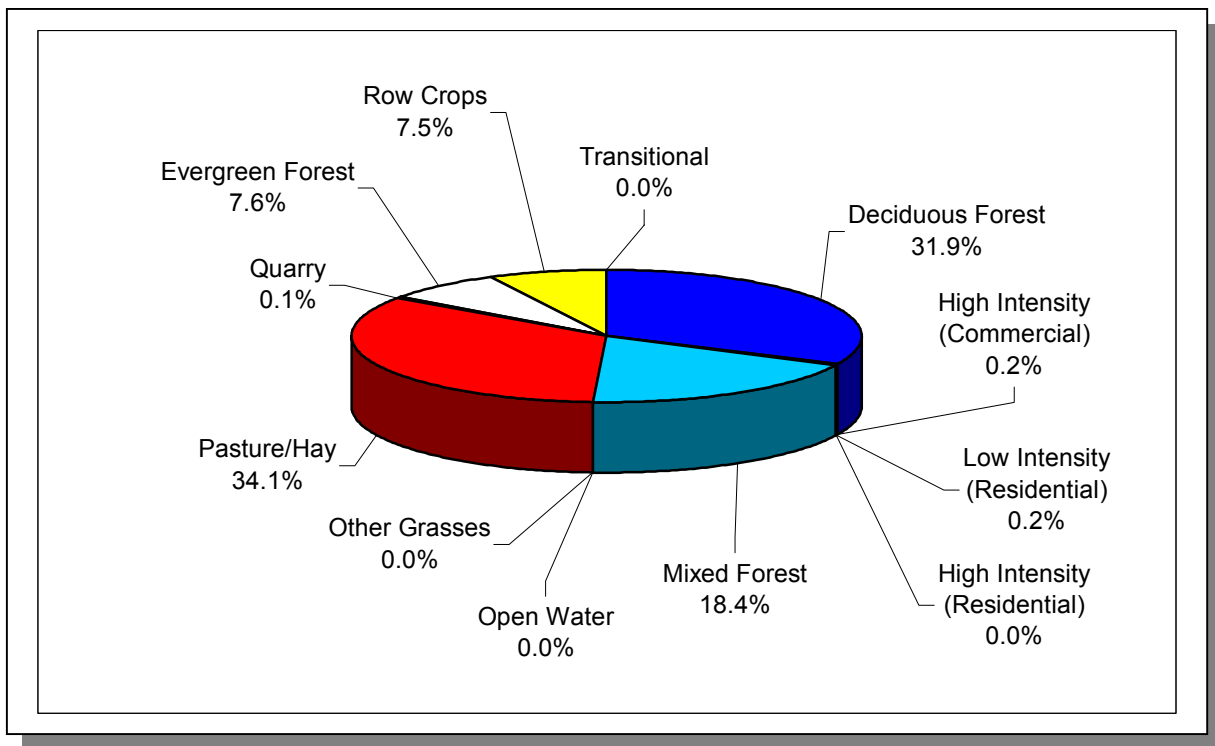


**Figure 4-70. Location of Subwatershed 0603000307.** All Upper Elk HUC-10 subwatershed boundaries are shown for reference.

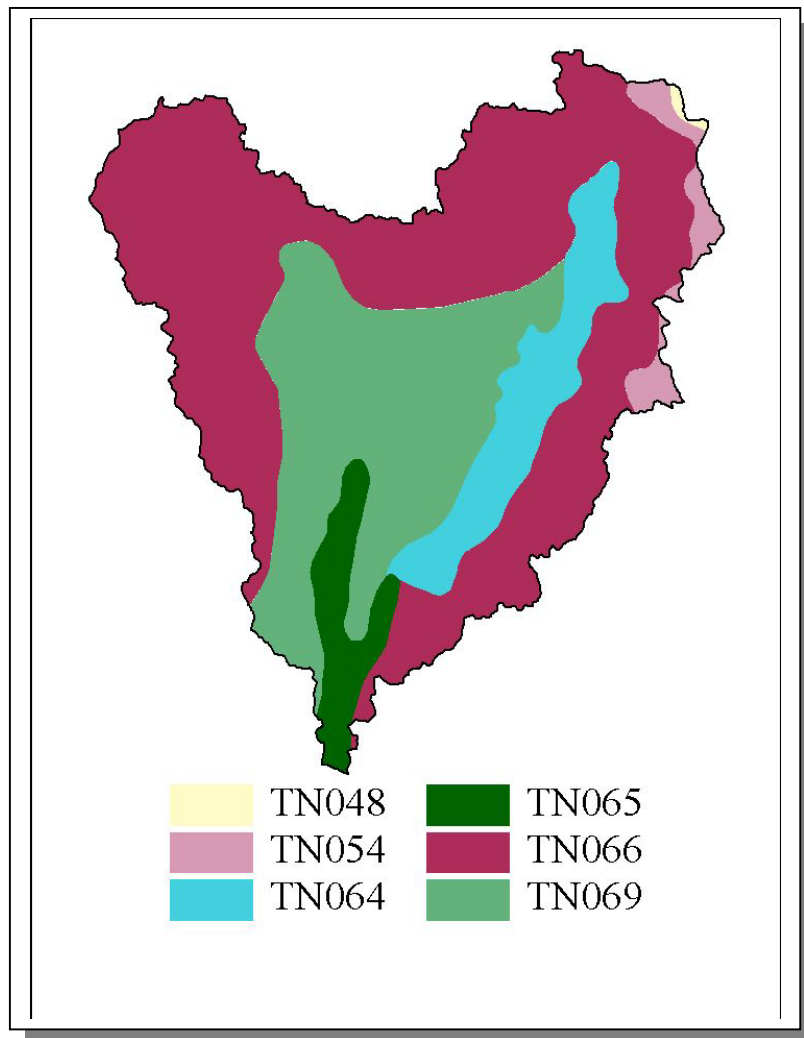
4.2.G.i. General Description.



*Figure 4-71. Illustration of Land Use Distribution in Subwatershed 0603000307.*



**Figure 4-72. Land Use Distribution in Subwatershed 0603000307.** More information is provided in Upper Elk-Appendix IV.



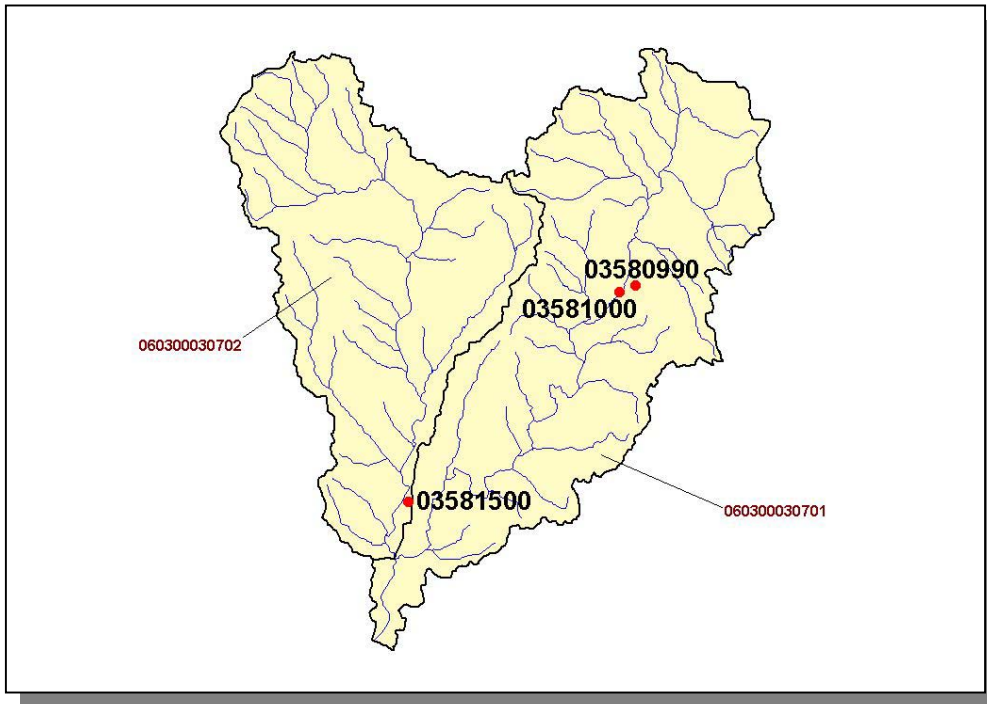
**Figure 4-73. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0603000307.**

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hr)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN048	8.00	C	1.38	5.06	Silty Loam	0.42
TN054	0.00	C	3.04	4.84	Loam	0.32
TN064	7.00	C	1.19	5.82	Silty Loam	0.37
TN065	0.00	C	1.15	5.52	Loam	0.32
TN066	0.00	B	2.62	4.75	Loam	0.28
TN069	0.00	C	2.06	5.36	Loam	0.34

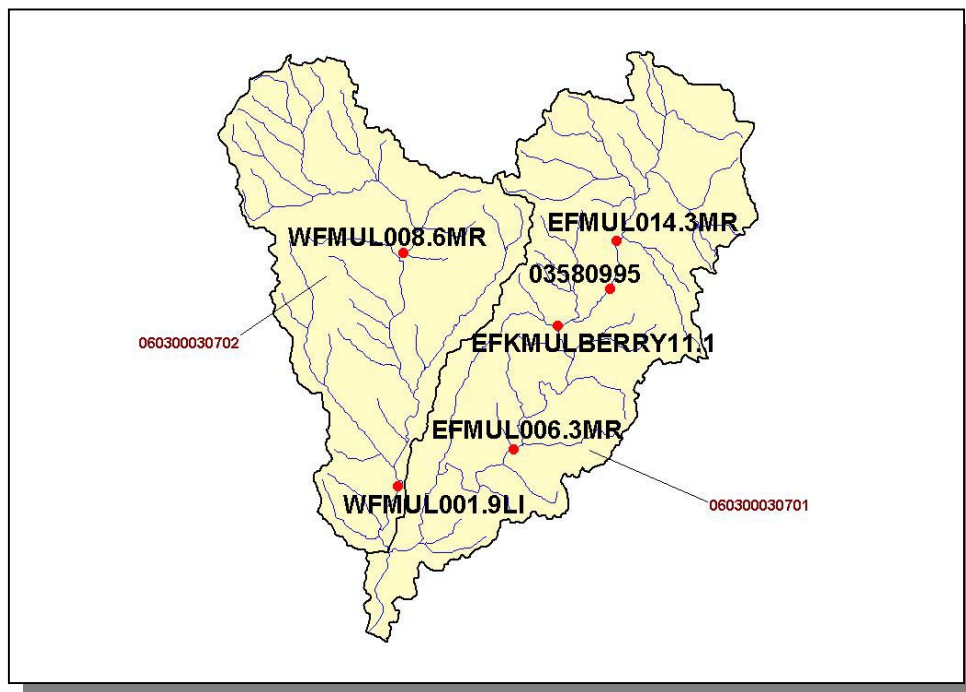
**Table 4-43. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0603000307.** More information is provided in Upper Elk-Appendix IV.

	COUNTY POPULATION			ESTIMATED POPULATION IN WATERSHED		PERCENT CHANGE
County	1990	1997 Est.	Portion of Watershed (%)	1990	1997	
Bedford	30,411	34,411	0.05	14	16	14.3
Lincoln	28,157	28,157	8.12	2,286	2,382	4.2
Moore	4,721	4,721	40.36	1,905	2,101	10.3
<b>Totals</b>	<b>63,289</b>	<b>63,289</b>		<b>4,205</b>	<b>4,499</b>	<b>7.0</b>

*Table 4-44. Population Estimates in Subwatershed 0603000307.*



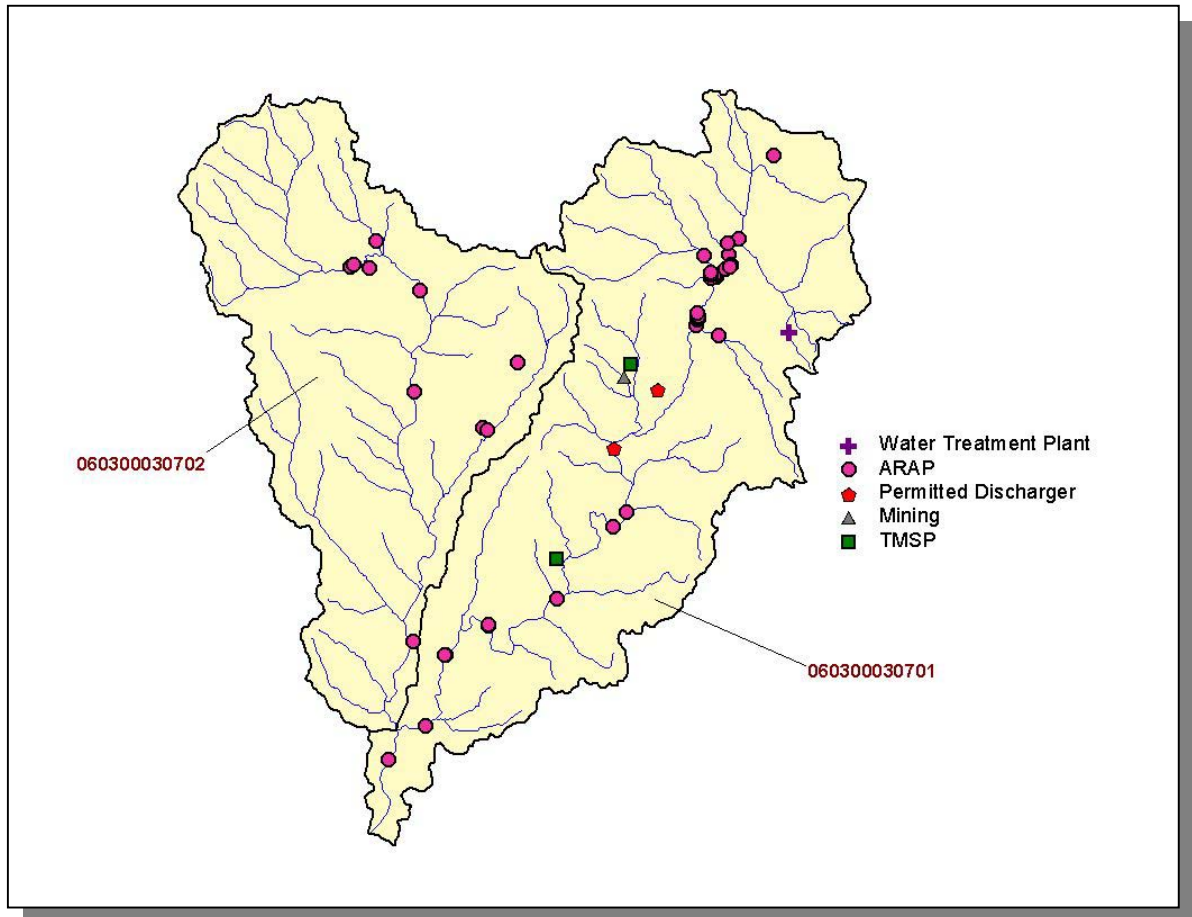
**Figure 4-74. Location of Historical Streamflow Data Collection Sites in Subwatershed 0603000307.** Subwatershed 060300030701 and 060300030702 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.



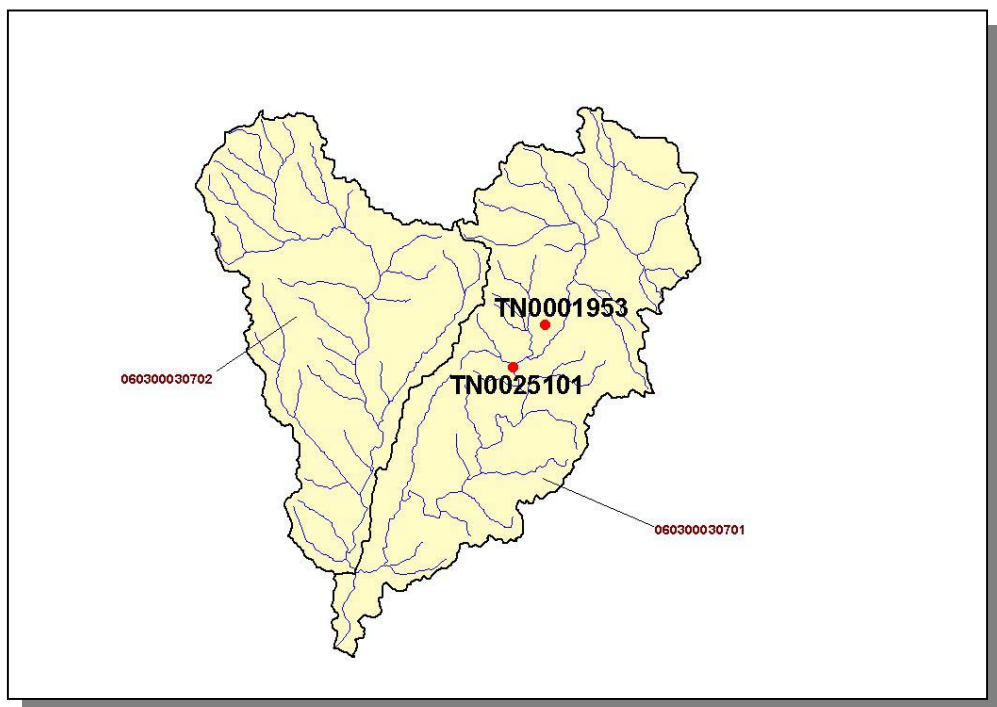
**Figure 4-75. Location of STORET Monitoring Sites in Subwatershed 0603000307.** Subwatershed 060300030701 and 060300030702 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.



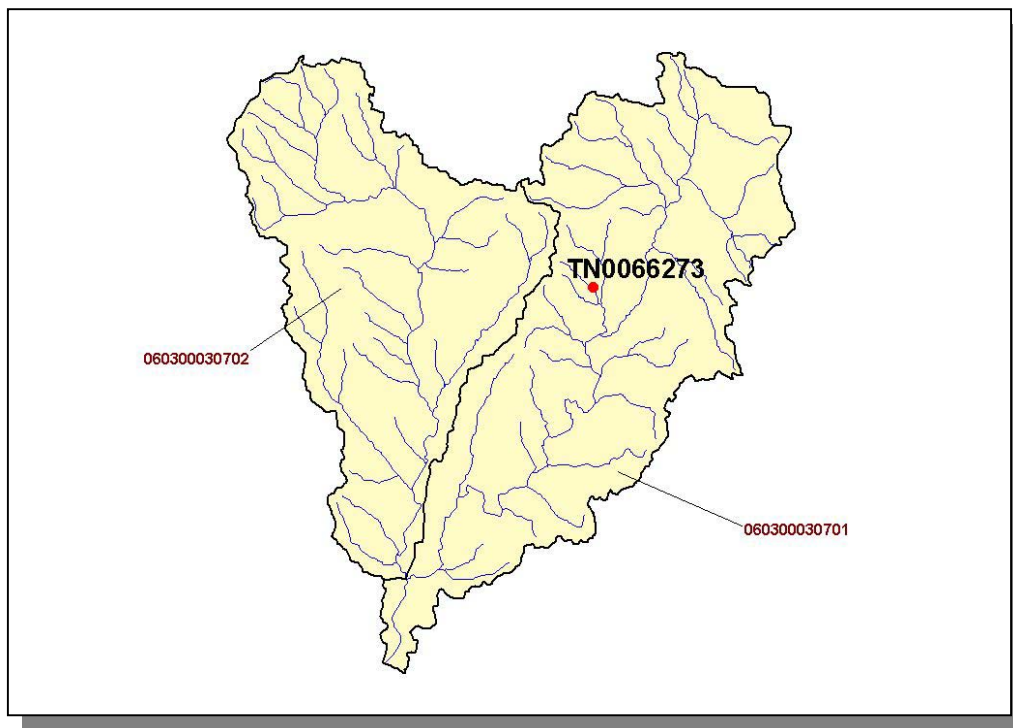
**4.2.G.ii.** Point Source Contributions.



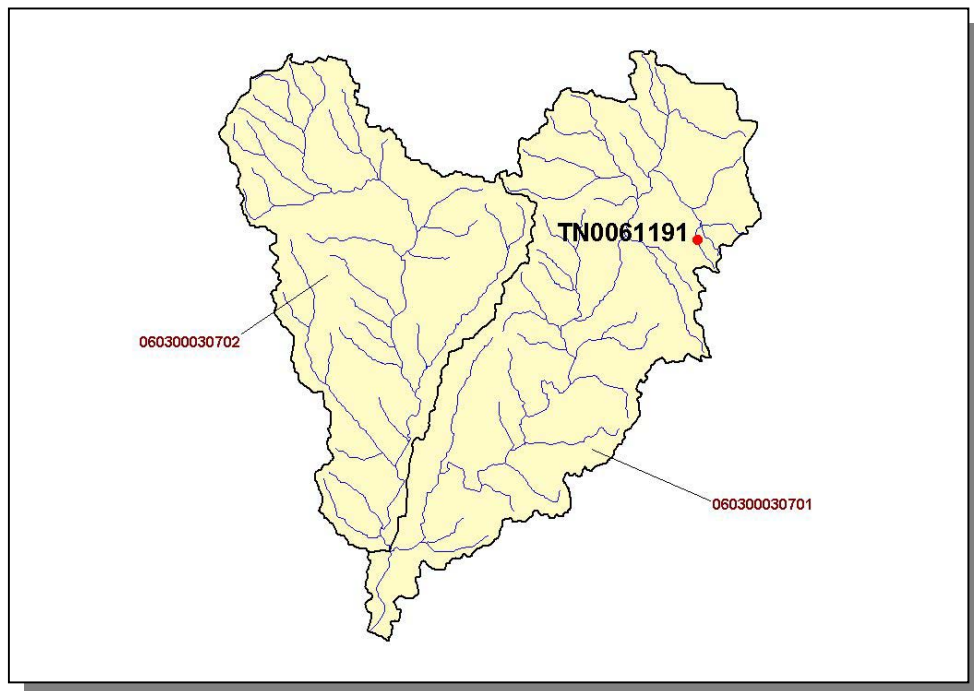
**Figure 4-76. Location of Active Point Source Facilities in Subwatershed 0603000307.** Subwatershed 060300030701 and 060300030702 boundaries are shown for reference. More information is provided in the following charts.



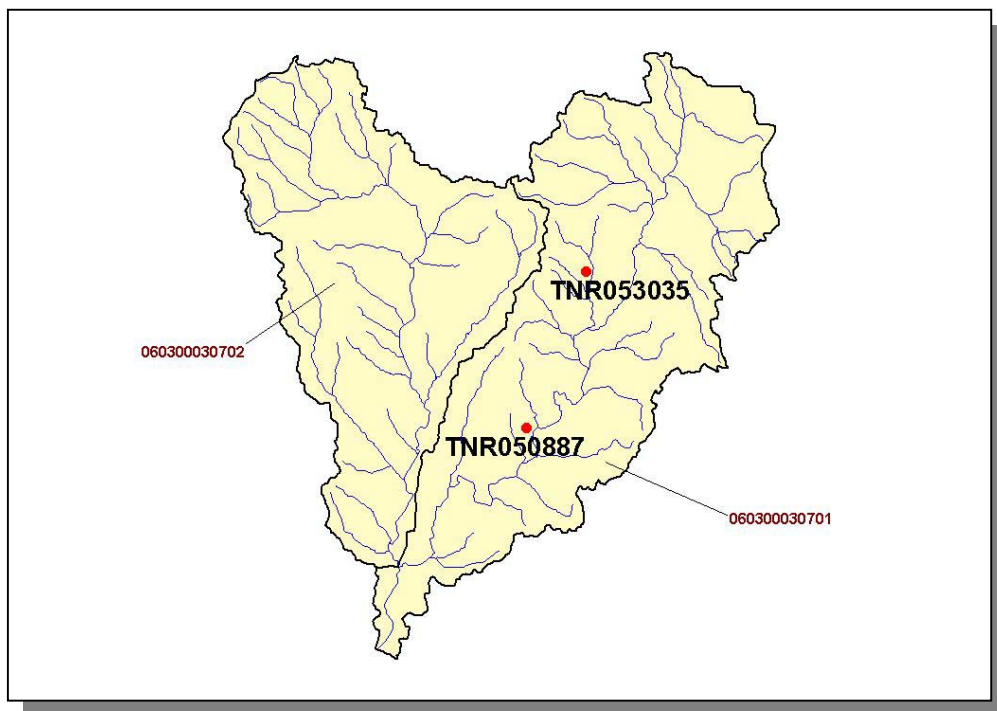
**Figure 4-77. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 0603000307.** Subwatershed 060300030701 and 060300030702 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.



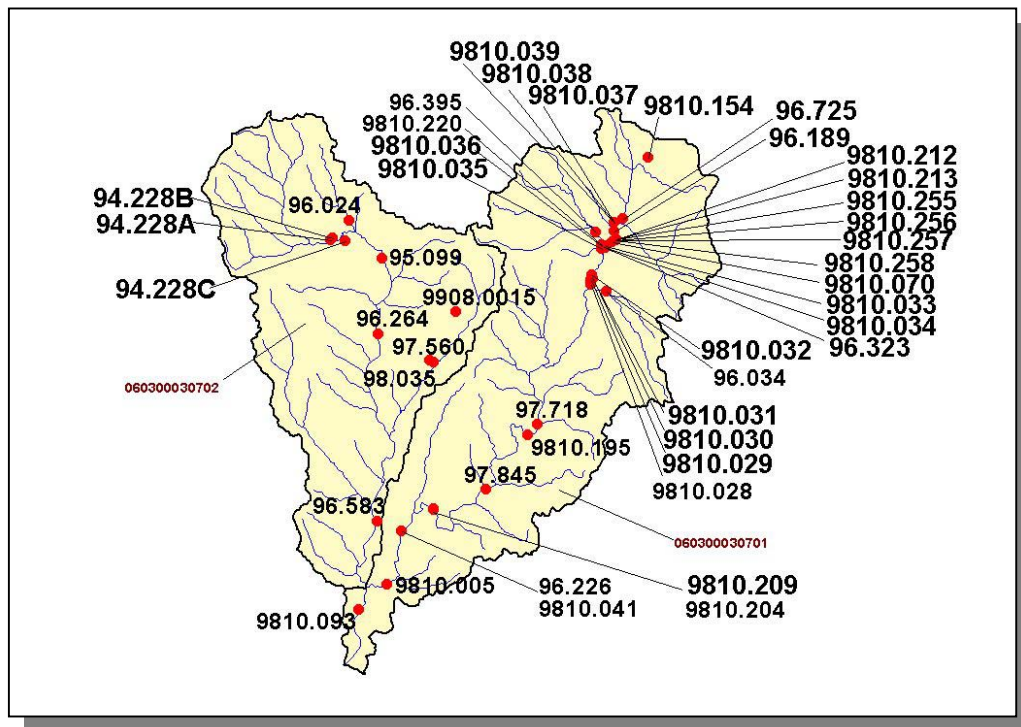
**Figure 4-78. Location of Active Mining Sites in Subwatershed 0603000307.** Subwatershed 060300030701 and 060300030702 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.



**Figure 4-79. Location of Water Treatment Plant Sites in Subwatershed 0603000301.** Subwatershed 060300030701 and 060300030702 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV



**Figure 4-80. Location of TMSP Facilities in Subwatershed 0603000307.** Subwatershed 060300030701 and 060300030702 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.



**Figure 4-81. Location of ARAP Sites (Individual Permits) in Subwatershed 0603000307.** Subwatershed 060300030701 and 060300030702 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.

**4.2.G.iii.** Nonpoint Source Contributions.

<b>LIVESTOCK (COUNTS)</b>						
Beef Cow	Cattle	Milk Cow	Chickens	Chickens Sold	Hogs	Sheep
6,214	12,556	752	15	1,669,843	311	74

**Table 4-45. Summary of Livestock Count Estimates in Subwatershed 0603000307.** According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

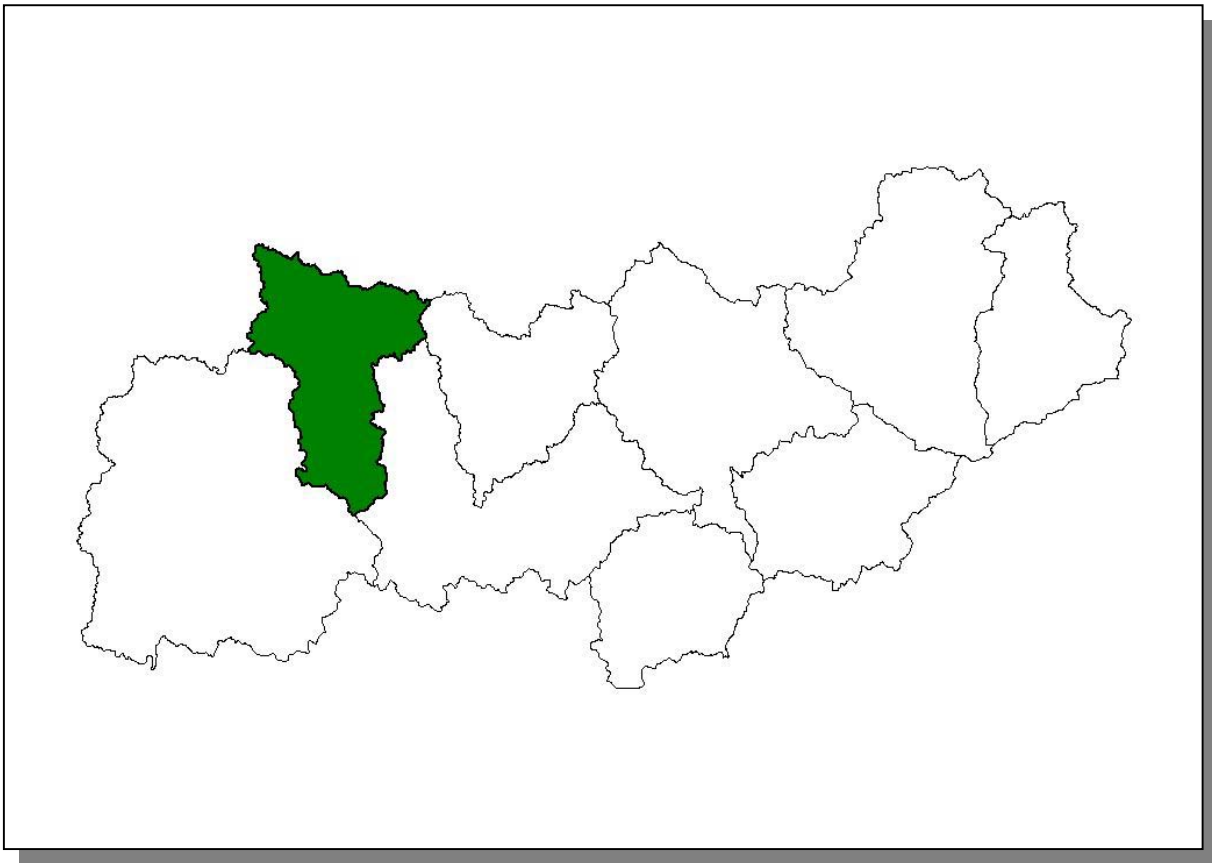
County	<b>INVENTORY</b>		<b>REMOVAL RATE</b>	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Bedford	74.6	74.6	0.5	1.3
Lincoln	136.7	136.7	1.1	3.2
Moore	36.6	36.6	0.0	0.0
<b>Totals</b>	<b>247.9</b>	<b>247.9</b>	<b>1.6</b>	<b>4.5</b>

**Table 4-46. Forest Acreage and Average Removal Rates (1987-1994) in Subwatershed 0603000307.**

<b>CROPS</b>	<b>TONS/ACRE/YEAR</b>
Grass (Hayland)	0.78
Legume (Hayland)	0.22
Legume/Grass (Hayland)	0.41
Grass (Pastureland)	1.63
Grass, Forbs, Legumes (Mixed Pasture)	1.53
Forest Land (Grazed)	0.00
Forest Land (Not Grazed)	0.00
Corn (Row Crops)	3.89
Soybeans (Row Crops)	7.21
Tobacco (Row Crops)	9.27
Potatoes (Row Crops)	3.05
Wheat (Close Grown Cropland)	3.28
Fruit (Horticultural)	0.09
Other Vegetable and Truck Crop	2.52
Summer Fallow (Other Cropland)	4.60
Other Land in Farms	0.28
Conservation Reserve Program Land	0.30
Farmsteads and Ranch Headquarters	0.27

**Table 4-47. Annual Estimated Total Soil Loss in Subwatershed 0603000307.**

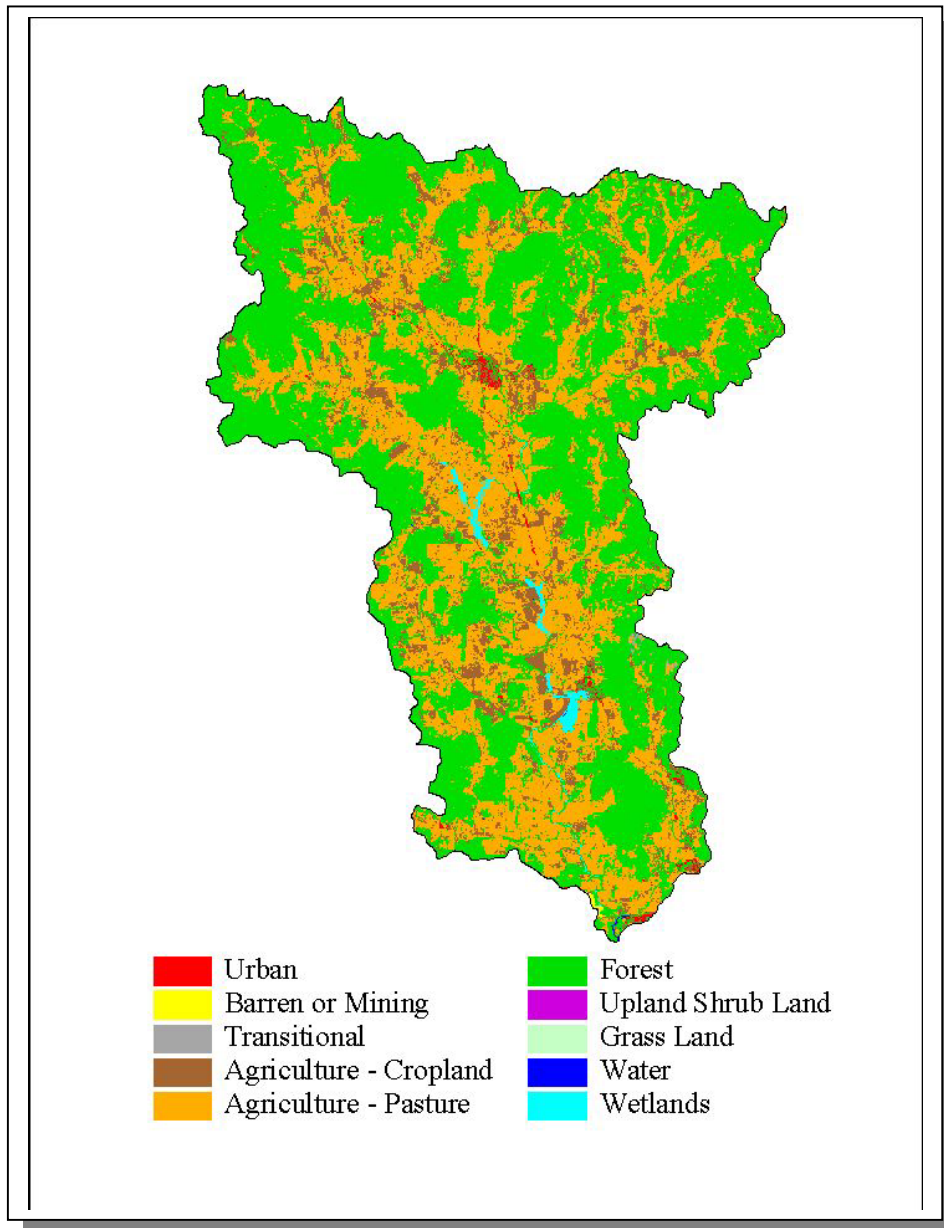
**4.2.G. 0603000308.**



**Figure 4-82. Location of Subwatershed 0603000308.** All Upper Elk HUC-10 subwatershed boundaries are shown for reference.

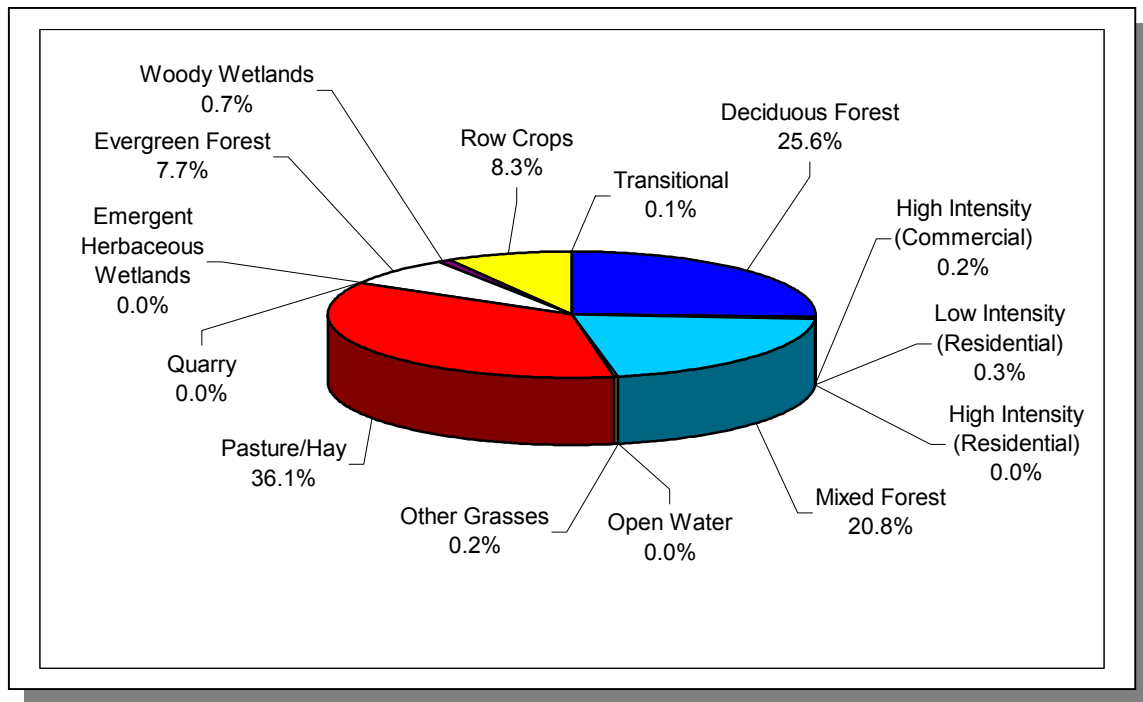


4.2.G.i. General Description.

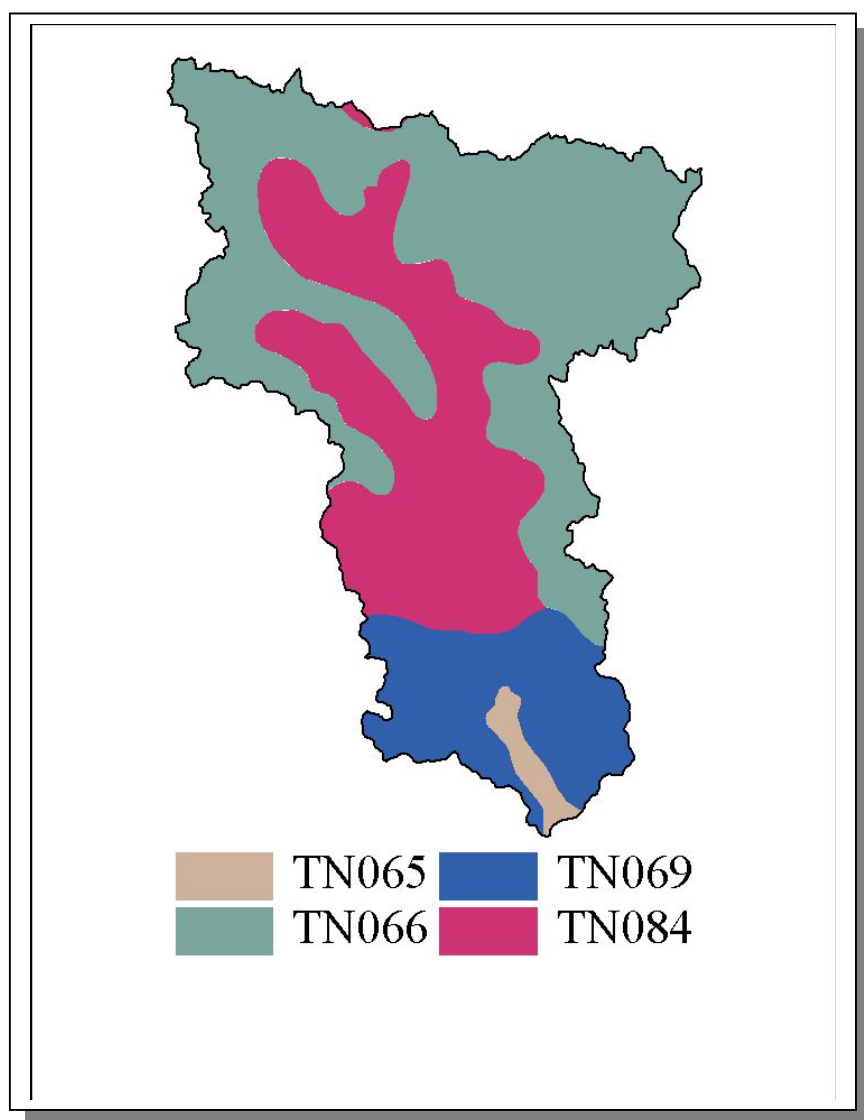


**Figure 4-83. Illustration of Land Use Distribution in Subwatershed 0603000308.**





**Figure 4-84. Land Use Distribution in Subwatershed 0603000308.** More information is provided in Upper Elk-Appendix IV.



**Figure 4-85. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0603000308.**

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hr)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN065	0.00	C	1.15	5.52	Loam	0.32
TN066	0.00	B	2.62	4.75	Loam	0.28
TN069	0.00	C	2.06	5.36	Loam	0.34
TN084	0.00	C	1.80	4.99	Silty Loam	0.28

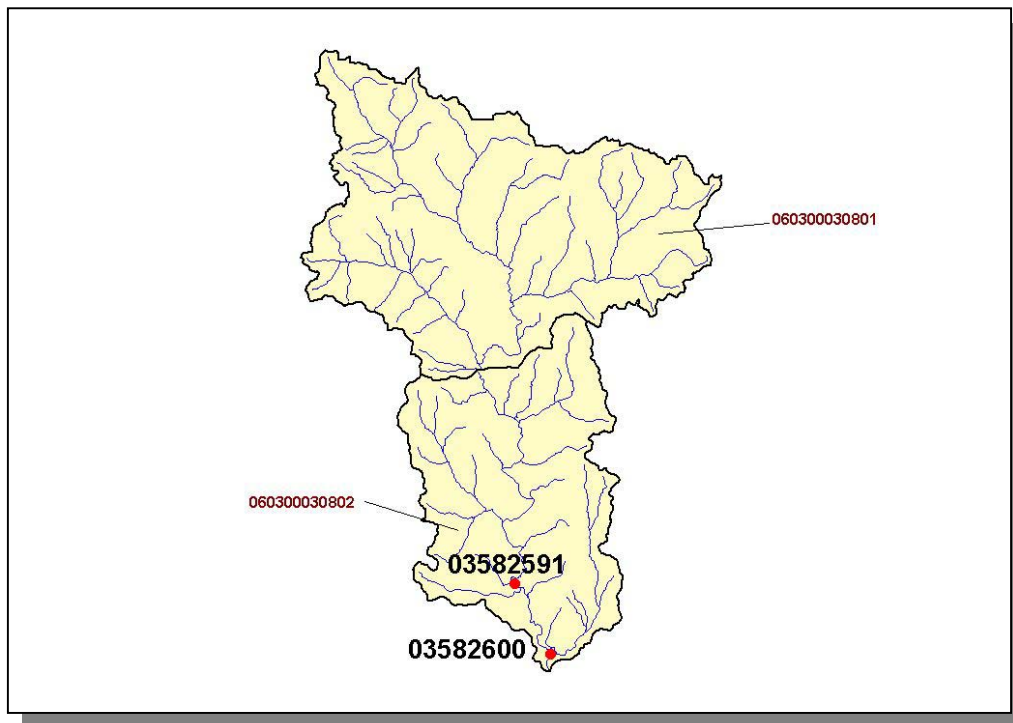
**Table 4-48. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0603000308.** More information is provided in Upper Elk-Appendix IV.

County	COUNTY POPULATION		Portion of Watershed (%)	ESTIMATED POPULATION IN WATERSHED		PERCENT CHANGE
	1990	1997 Est.		1990	1997	
Lincoln	28,157	29,336	12.59	3,546	3,694	4.2
Marcshall	21,539	25,687	8.77	1,890	2,254	19.3
<b>Totals</b>	<b>49,696</b>	<b>55,023</b>		<b>5,436</b>	<b>5,948</b>	<b>9.4</b>

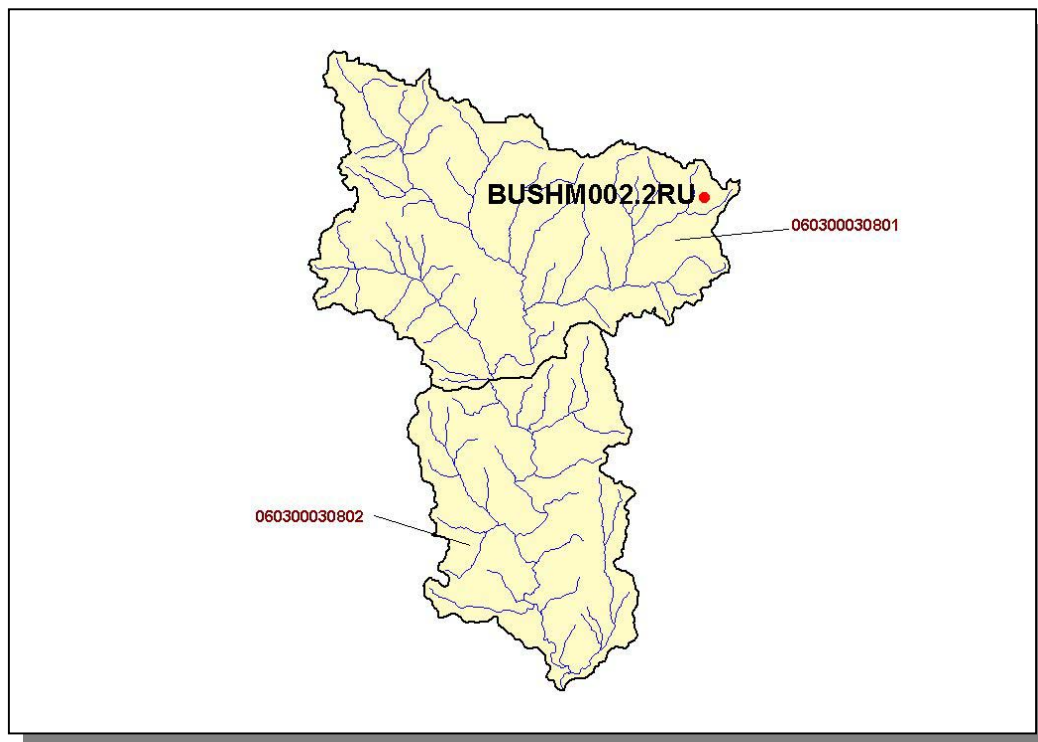
*Table 4-49. Population Estimates in Subwatershed 0603000308.*

NUMBER OF HOUSING UNITS						
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Petersburg	Marshall	514	248	14	230	4
Fayetteville	Lincoln	6,921	3,277	3,168	99	10
<b>Total</b>		<b>7,435</b>	<b>3,525</b>	<b>3,182</b>	<b>329</b>	<b>14</b>

*Table 4-50. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 0603000308.*

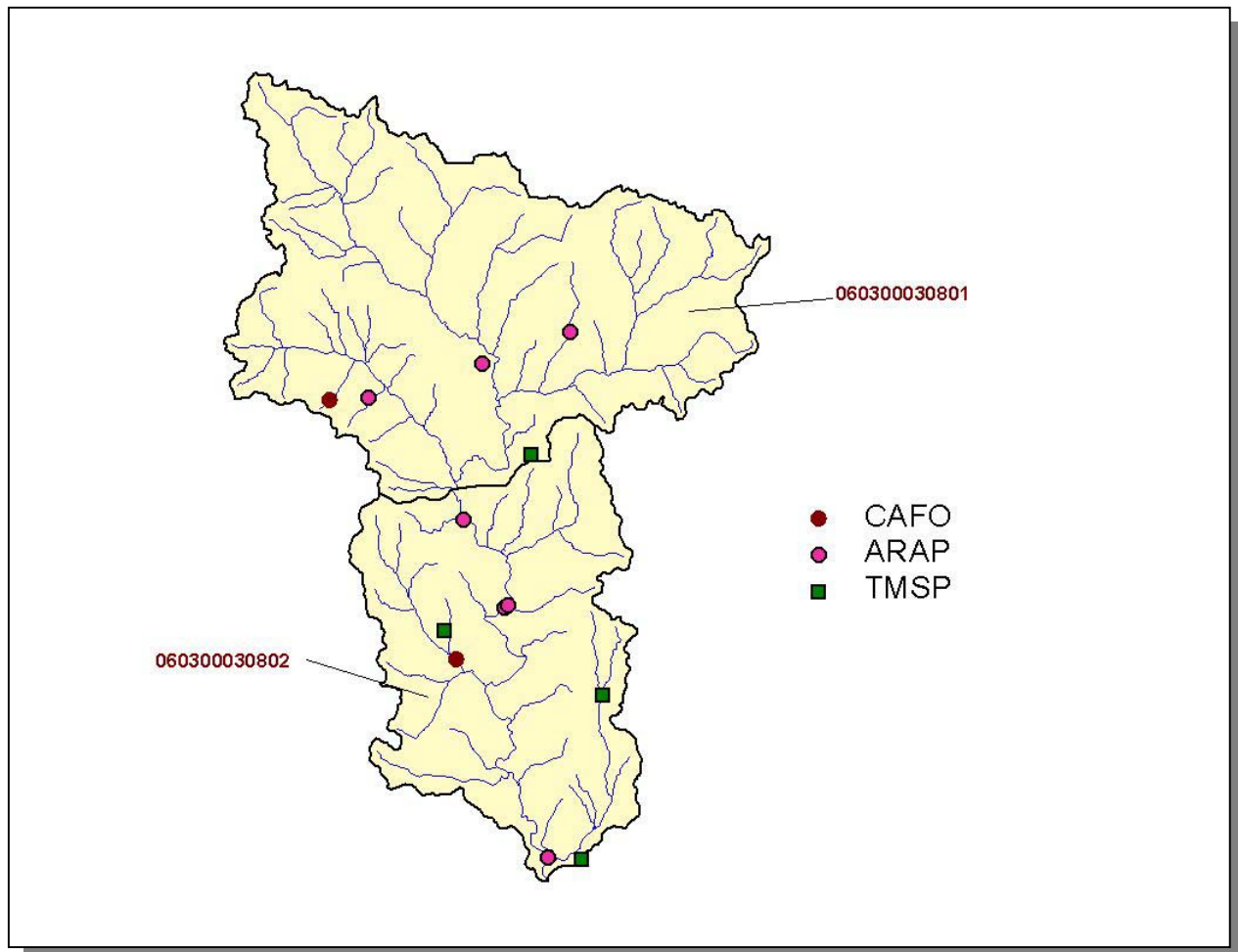


**Figure 4-86. Location of Historical Streamflow Data Collection Sites in Subwatershed 0603000308.** Subwatershed 060300030801 and 060300030802 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.

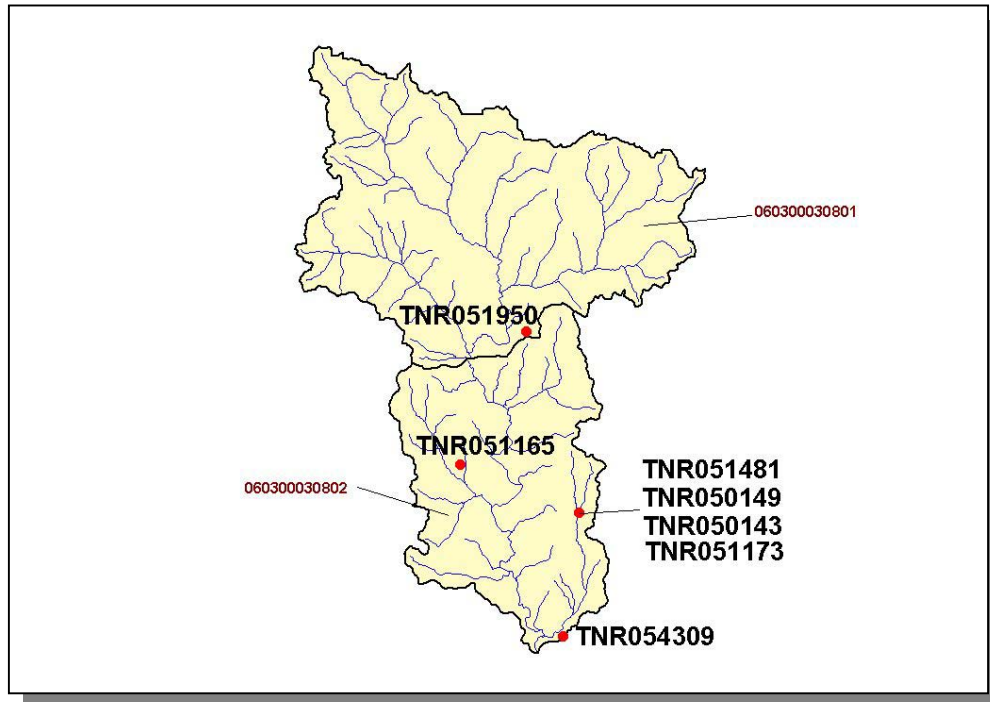


**Figure 4-87. Location of STORET Monitoring Sites in Subwatershed 0603000308.** Subwatershed 060300030801 and 060300030802 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.

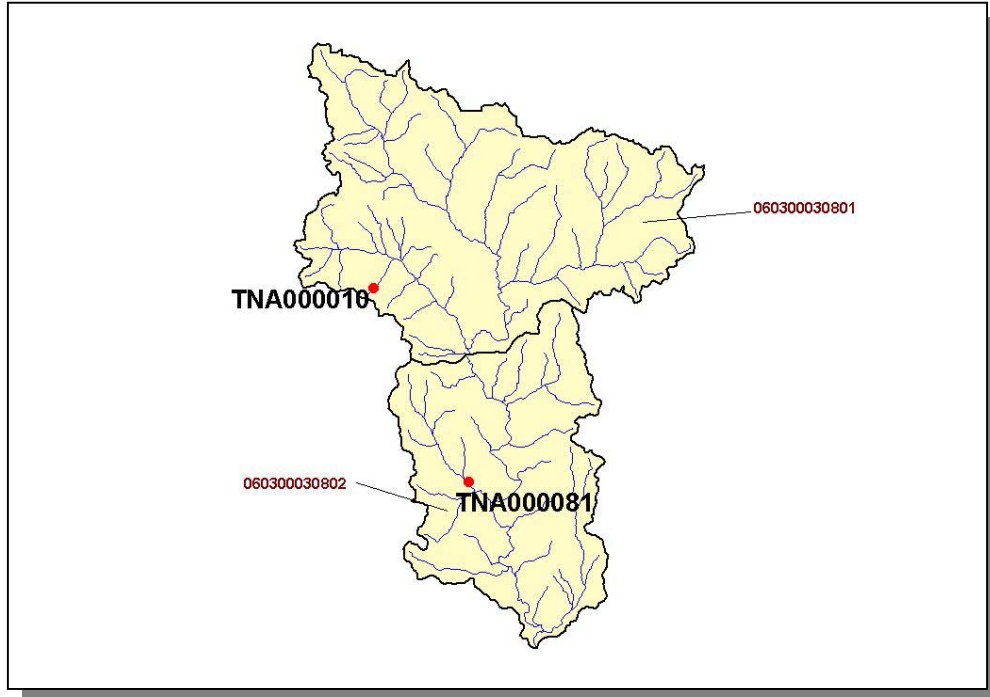
**4.2.G.ii.** Point Source Contributions.



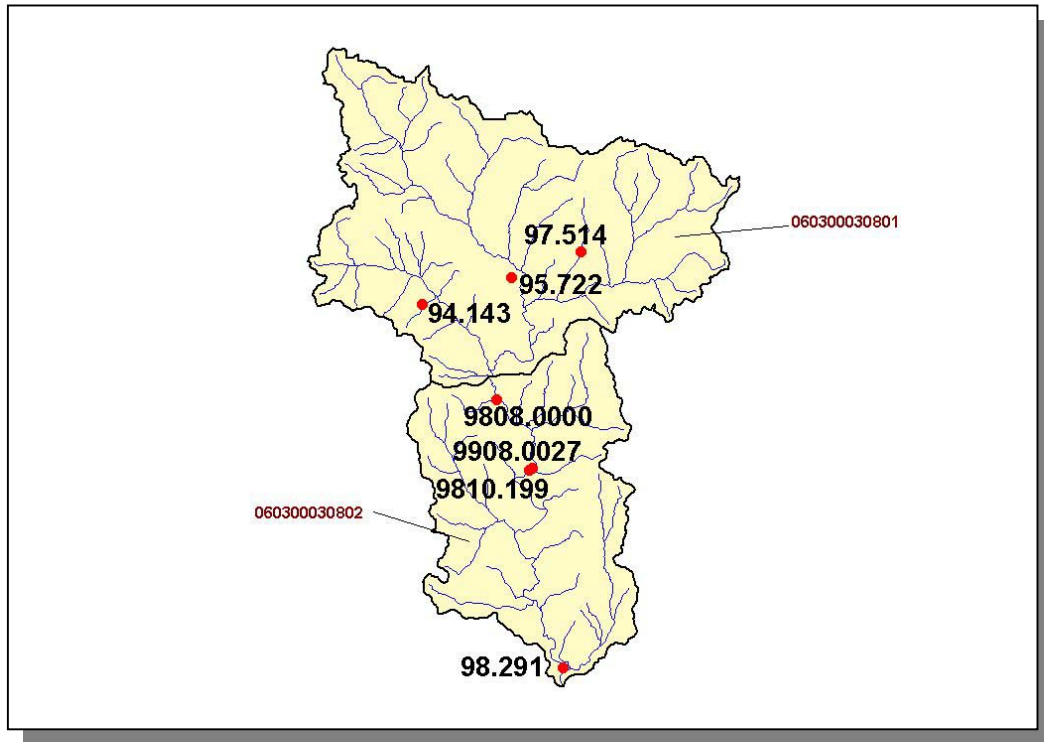
**Figure 4-88. Location of Active Point Source Facilities in Subwatershed 0603000308.** Subwatershed 060300030801 and 060300030802 boundaries are shown for reference. More information is provided in the following charts.



**Figure 4-89. Location of TMSP Facilities in Subwatershed 0603000308.** Subwatershed 060300030801 and 060300030802 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.



**Figure 4-90. Location of CAFO Facilities in Subwatershed 0603000308.** Subwatershed 060300030801 and 060300030802 boundaries are shown for reference. CAFO rules may be found at <http://cfpub.epa.gov/npdes/afo/cafofinalrule.cfm>. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.



**Figure 4-91. Location of ARAP Sites (Individual Permits) in Subwatershed 0603000308.** Subwatershed 060300030801 and 060300030802 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.



**4.2.G.iii.** Nonpoint Source Contributions.

<b>LIVESTOCK (COUNTS)</b>						
Beef Cow	Cattle	Milk Cow	Chickens	Chickens Sold	Hogs	Sheep
6,757	14,159	1,193	14	722,893	930	94

**Table 4-51. Summary of Livestock Count Estimates in Subwatershed 0603000308.** According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

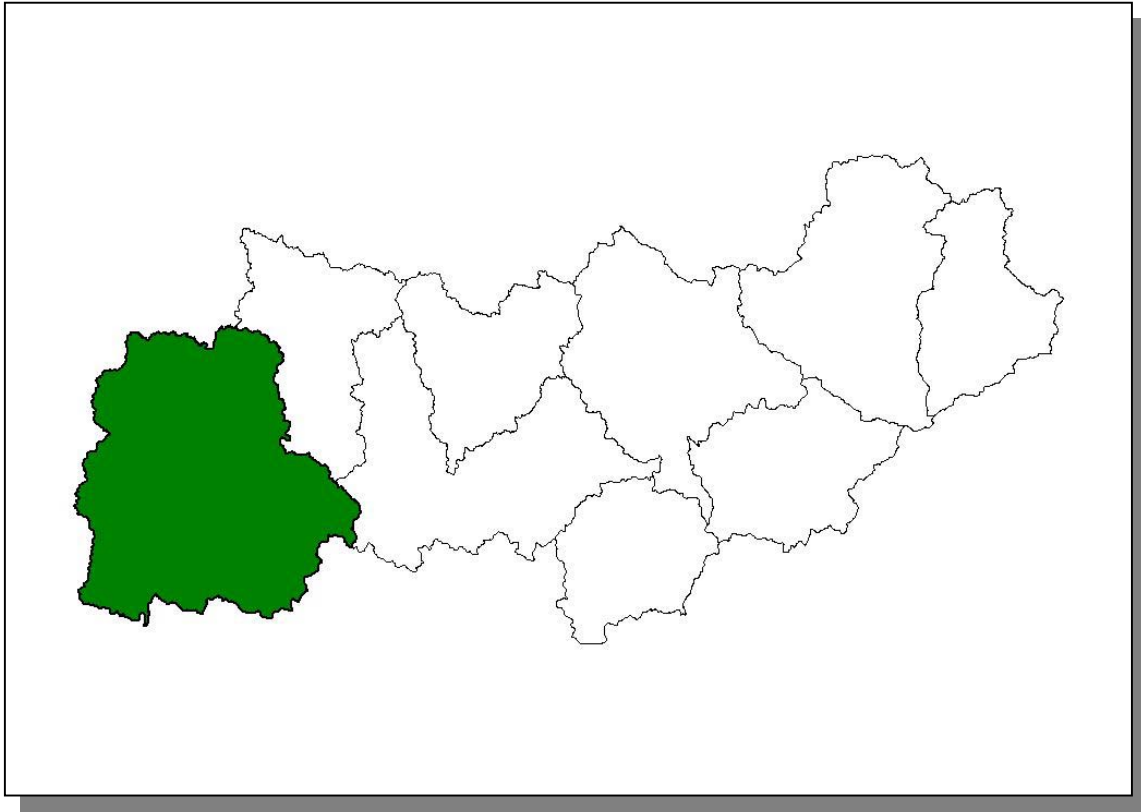
County	<b>INVENTORY</b>		<b>REMOVAL RATE</b>	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Lincoln	136.7	136.7	1.1	3.2

**Table 4-52. Forest Acreage and Average Removal Rates (1987-1994) in Subwatershed 0603000308.**

<b>CROPS</b>	<b>TONS/ACRE/YEAR</b>
Grass (Hayland)	0.26
Legume (Hayland)	0.26
Legume/Grass (Hayland)	1.00
Grass (Pastureland)	1.01
Grass, Forbs, Legumes (Mixed Pasture)	0.86
Forest Land (Grazed)	0.00
Forest Land (Not Grazed)	0.00
Corn (Row Crops)	5.43
Soybeans (Row Crops)	6.73
Potatoes (Row Crops)	3.04
Tobacco (Row Crops)	9.27
Conservation Reserve Program Land	0.26
Wheat (Close Grown Cropland)	4.75
Other Vegetable and Truck Crops	2.52
Fruit (Horticulture)	0.09
Summer Fallow (Other Cropland)	8.75
Nonagricultural land Use	0.00
Farmsteads and Ranch Headquarters	0.30
Other Land in Farms	0.21

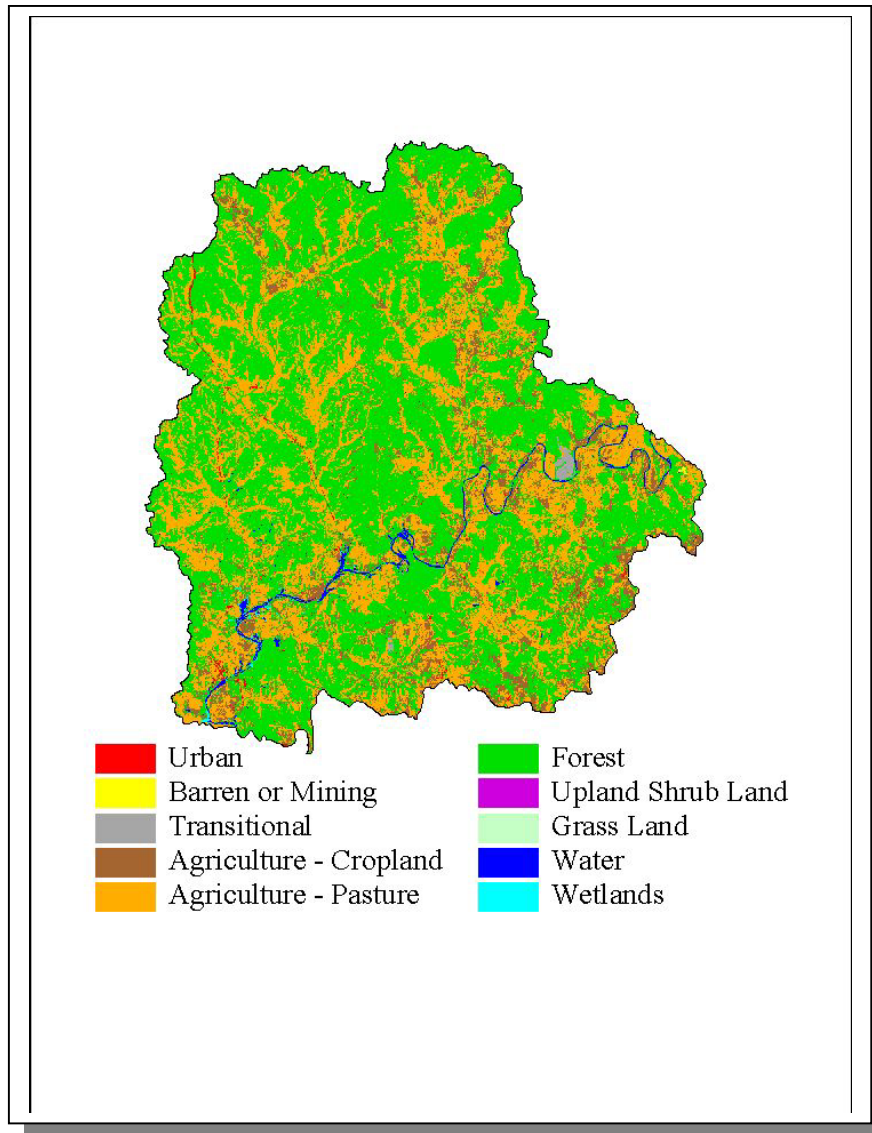
**Table 4-53. Annual Estimated Total Soil Loss in Subwatershed 0603000308.**

**4.2.G. 0603000309.**

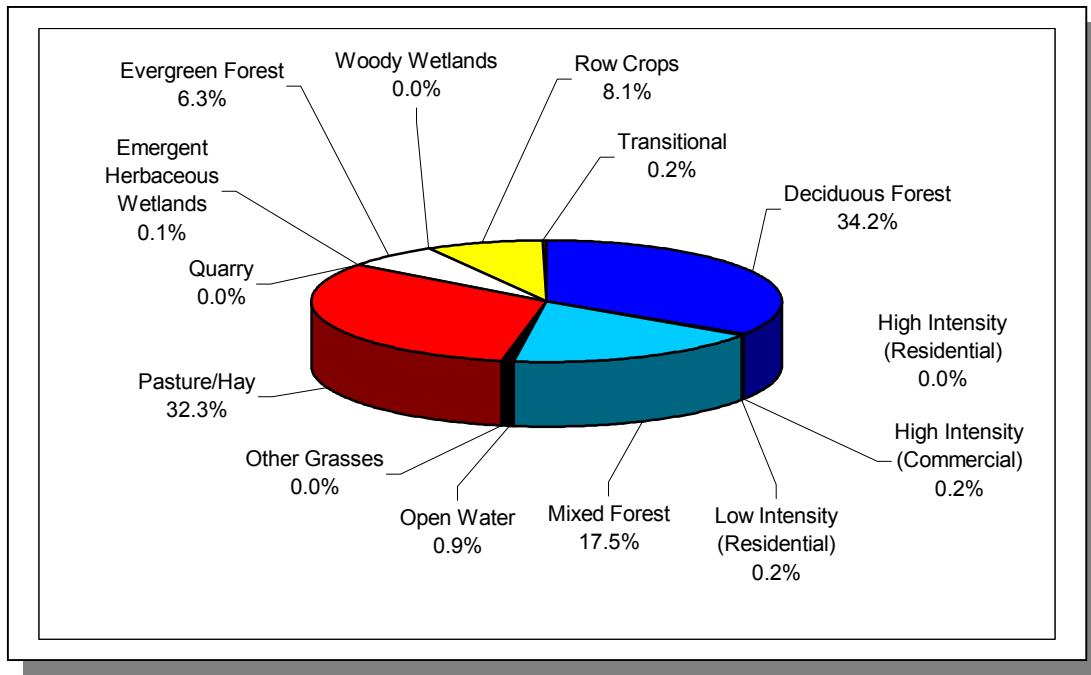


**Figure 4-92. Location of Subwatershed 0603000309.** All Upper Elk HUC-10 subwatershed boundaries are shown for reference.

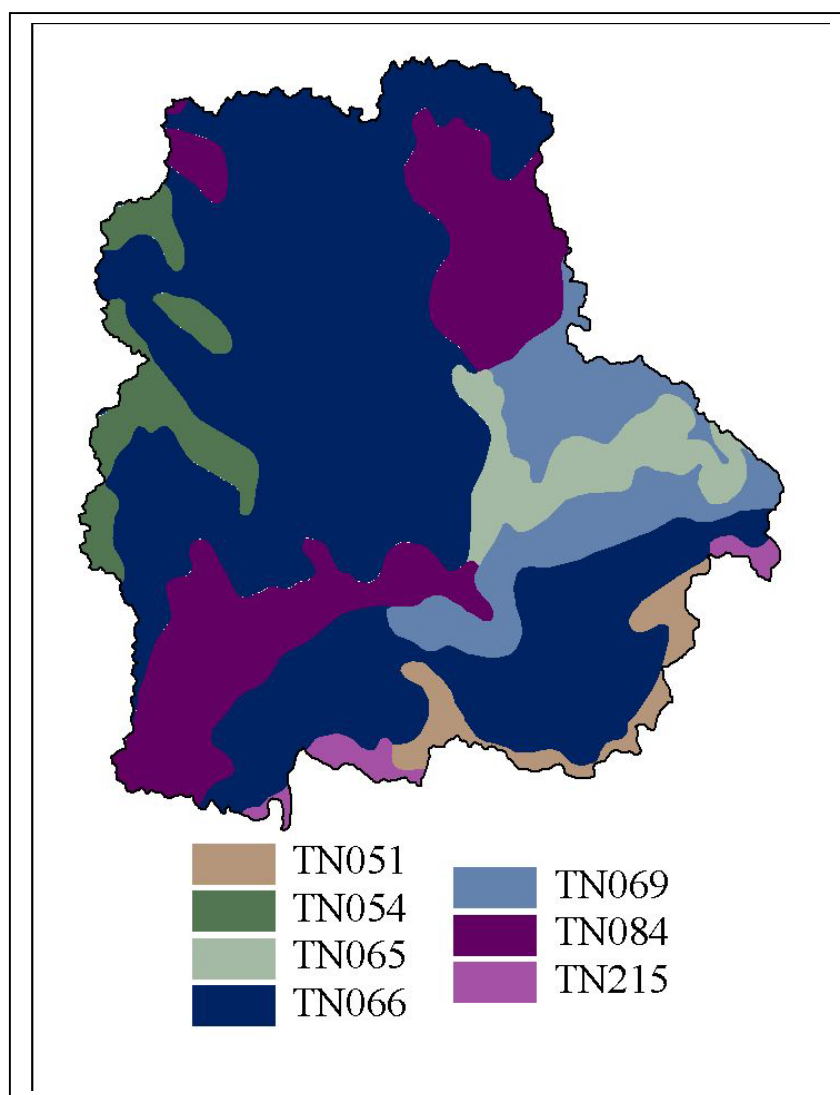
4.2.G.i. General Description.



**Figure 4-93. Illustration of Land Use Distribution in Subwatershed 0603000309.**



**Figure 4-94. Land Use Distribution in Subwatershed 0603000309.** More information is provided in Upper Elk-Appendix IV.



**Figure 4-95. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0603000309.**

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hr)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN051	1.00	C	1.73	5.44	Loam	0.33
TN054	0.00	C	3.04	4.84	Loam	0.32
TN065	0.00	C	1.15	5.52	Loam	0.32
TN066	0.00	B	2.62	4.75	Loam	0.28
TN069	0.00	C	2.06	5.36	Loam	0.34
TN084	0.00	C	1.80	4.99	Silty Loam	0.28
TN215	9.00	C	1.57	5.02	Silty Loam	0.39

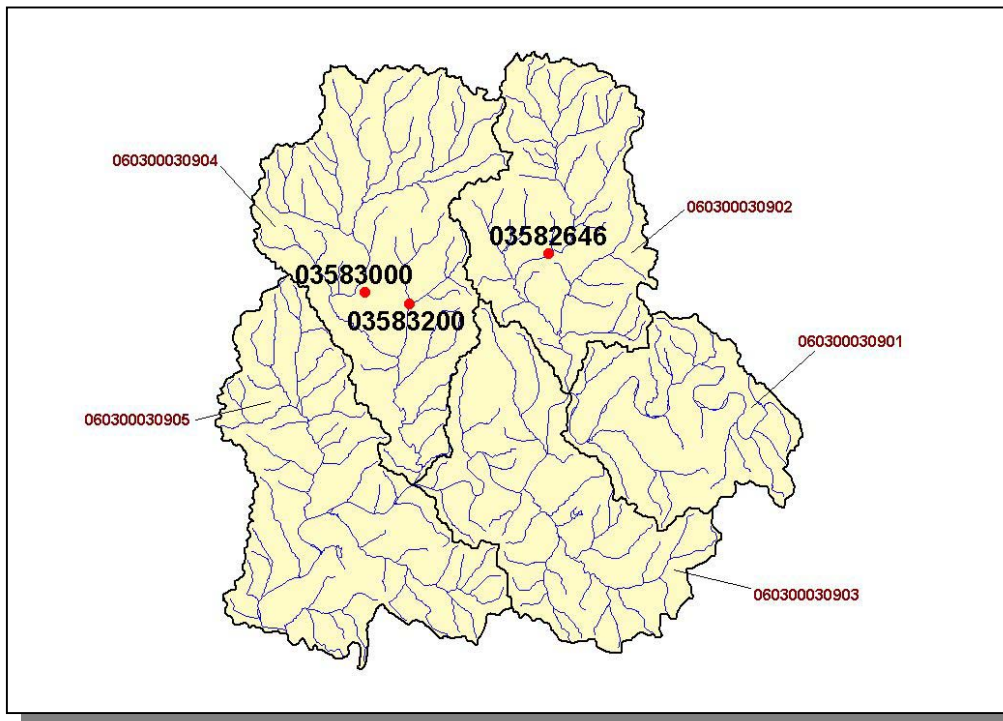
**Table 4-54. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0603000309.** More information is provided in Upper Elk-Appendix IV.

County	COUNTY POPULATION		Portion of Watershed (%)	ESTIMATED POPULATION IN WATERSHED		% CHANGE
	1990	1997 Est.		1990	1997	
Giles	25,741	28,515	13.95	3,592	3,979	10.8
Lincoln	28,157	29,336	31.21	8,788	9,156	4.2
Marshall	21,539	25,687	2.69	579	691	19.3
<b>Totals</b>	<b>75,437</b>	<b>83,538</b>		<b>12,959</b>	<b>13,826</b>	<b>6.7</b>

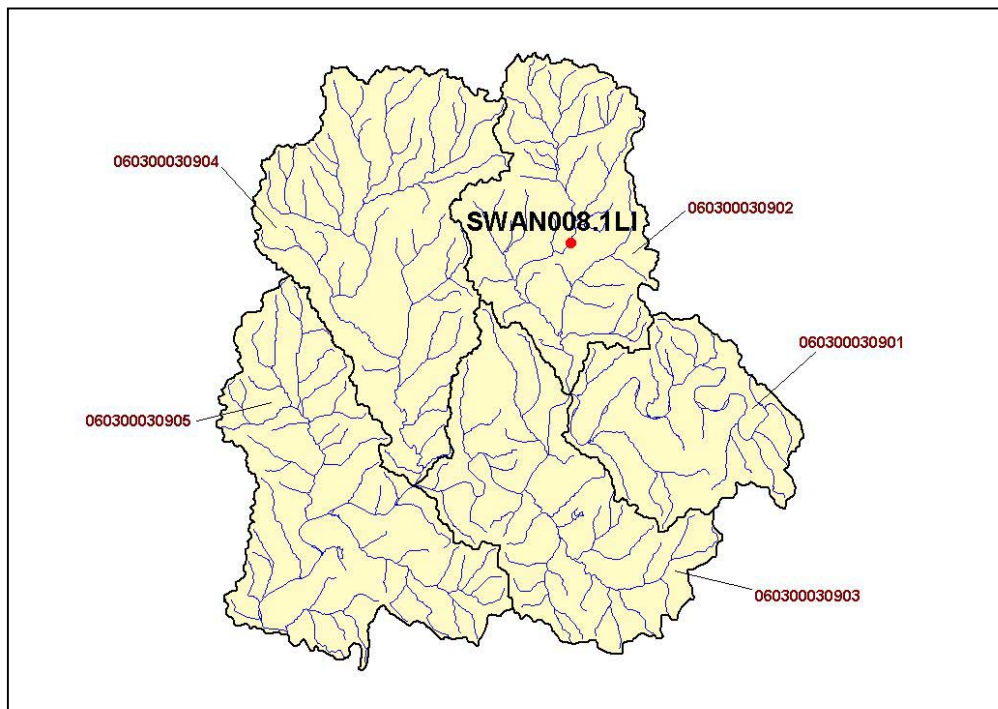
*Table 4-55. Population Estimates in Subwatershed 0603000309.*

NUMBER OF HOUSING UNITS						
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Ardmore	Giles	828	342	191	150	0
Elkton	Giles	463	184	1	183	0
<b>Total</b>		<b>1,291</b>	<b>526</b>	<b>192</b>	<b>333</b>	<b>0</b>

*Table 4-56. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 0603000309.*



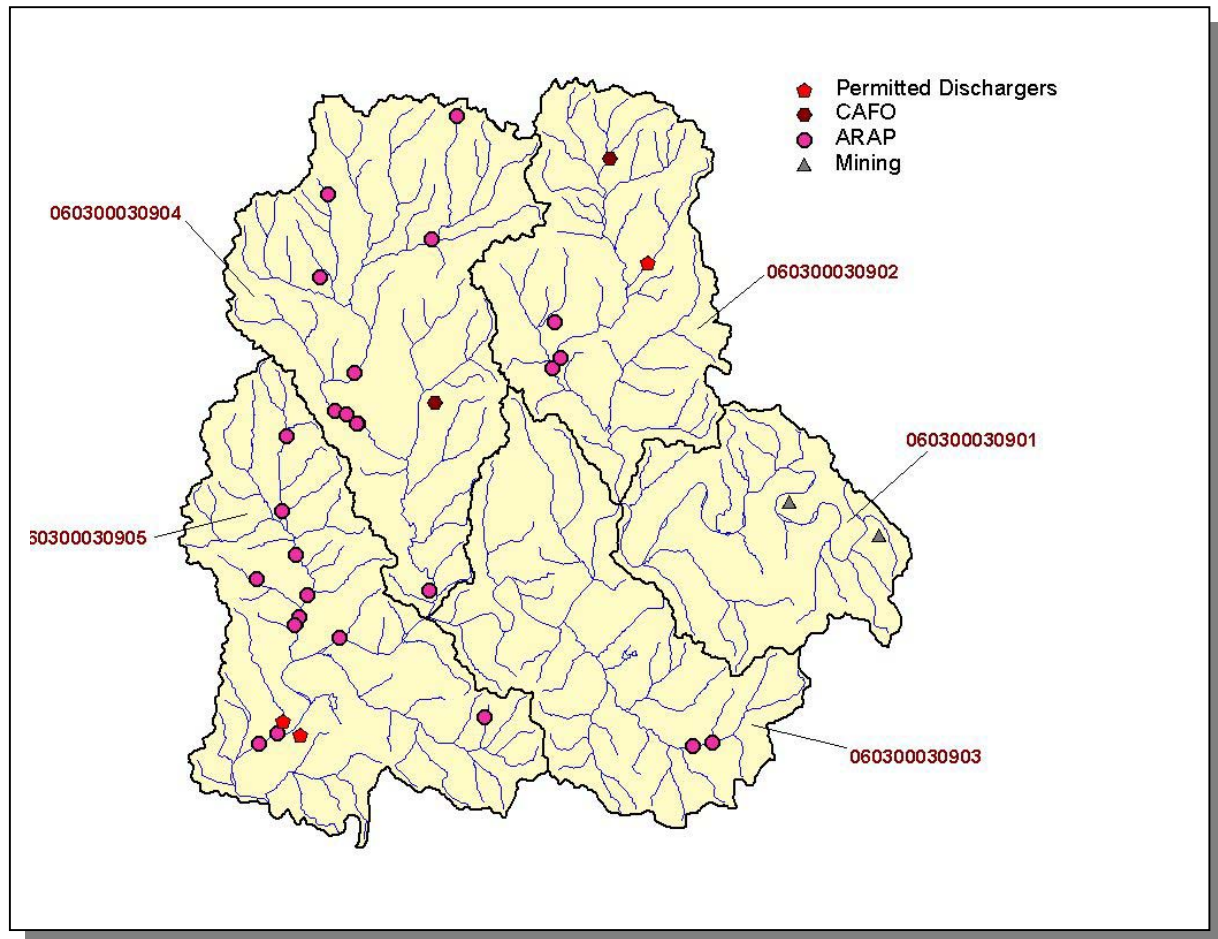
**Figure 4-96. Location of Historical Streamflow Data Collection Sites in Subwatershed 060300030909.** Subwatershed 060300030901, 060300030902, 060300030903, 060300030904, and 060300030905 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.



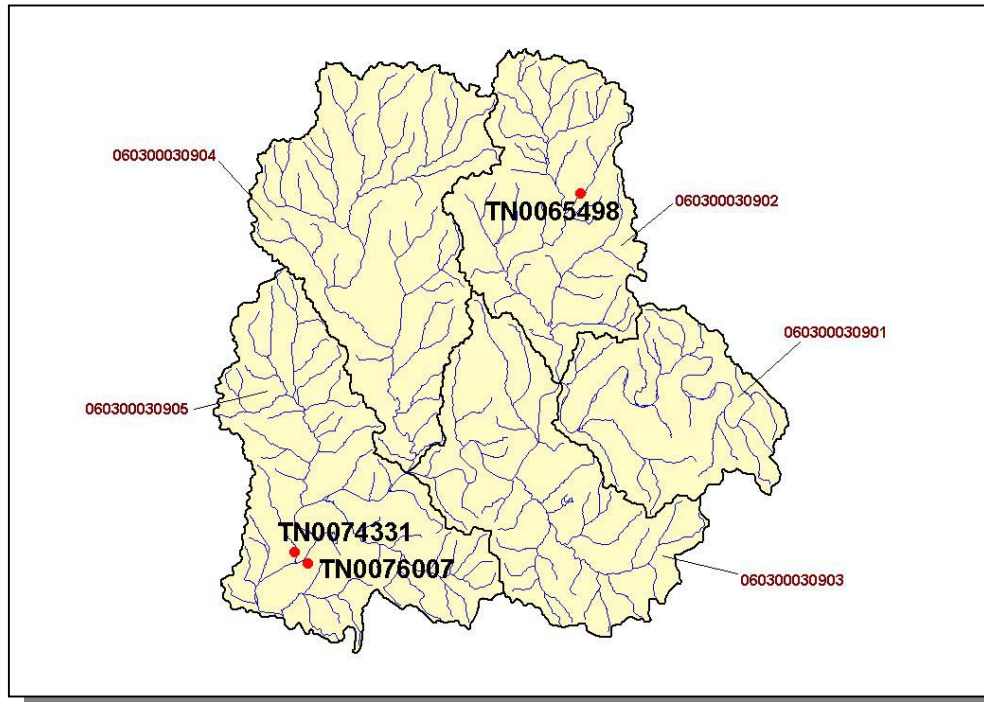
**Figure 4-97. Location of STORET Monitoring Sites in Subwatershed 060300030909.** Subwatershed 060300030901, 060300030902, 060300030903, 060300030904, and 060300030905 boundaries are shown for reference. More information is provided in Upper Elk-Appendix IV.



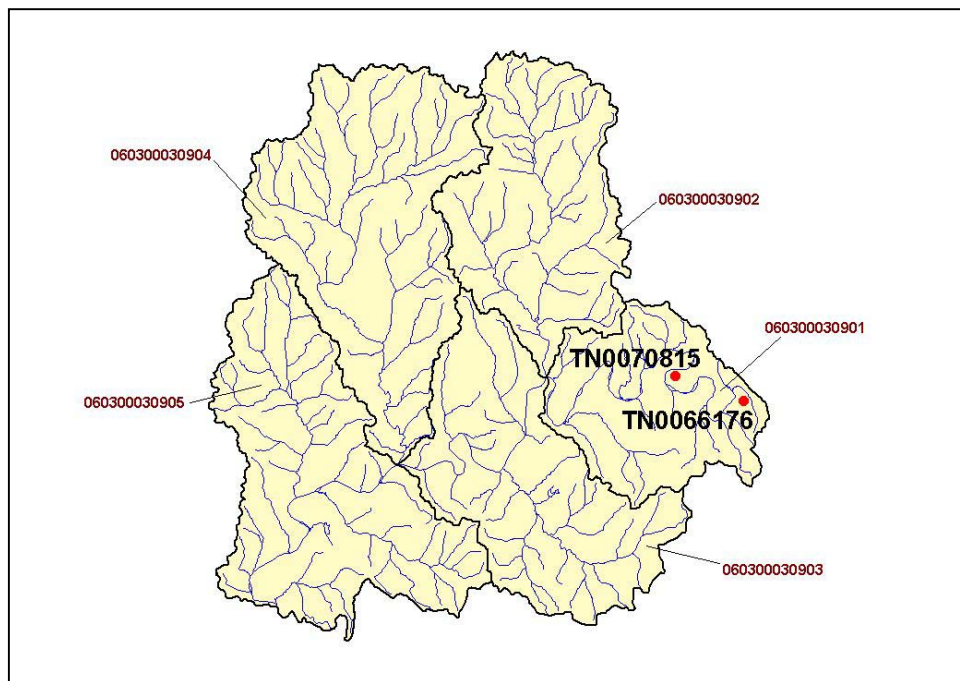
**4.2.G.ii.** Point Source Contributions.



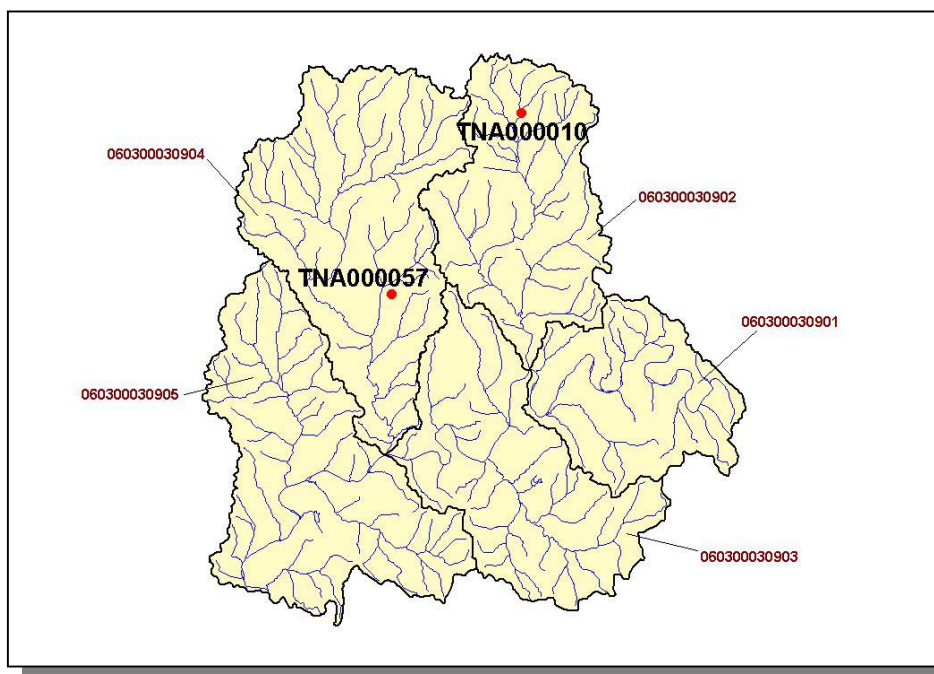
**Figure 4-98. Location of Active Point Source Facilities in Subwatershed 0603000309.** Subwatershed 060300030901, 060300030902, 060300030903, 060300030904, and 060300030905 boundaries are shown for reference. More information is provided in the following charts.



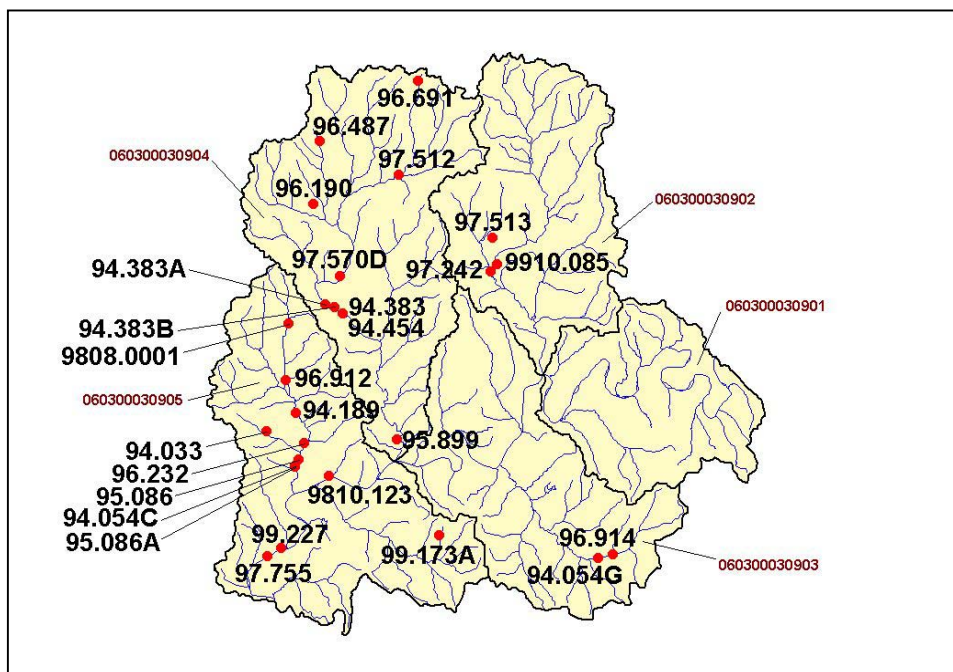
**Figure 4-99. Location of Active Point Source Facilities (Individual Permits) in Subwatershed 0603000309.** Subwatershed 060300030901, 060300030902, 060300030903, 060300030904, and 060300030905 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.



**Figure 4-100. Location of Active Mining Sites in Subwatershed 0603000309.** Subwatershed 060300030901, 060300030902, 060300030903, 060300030904, and 060300030905 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.



**Figure 4-101. Location of CAFO Facilities in Subwatershed 0603000309.** Subwatershed 060300030901, 060300030902, 060300030903, 060300030904, and 060300030905 boundaries are shown for reference. CAFO rules may be found at <http://cfpub.epa.gov/npdes/afo/cafofinalrule.cfm>. More information, including the names of facilities, is provided in Upper El-Appendix IV.



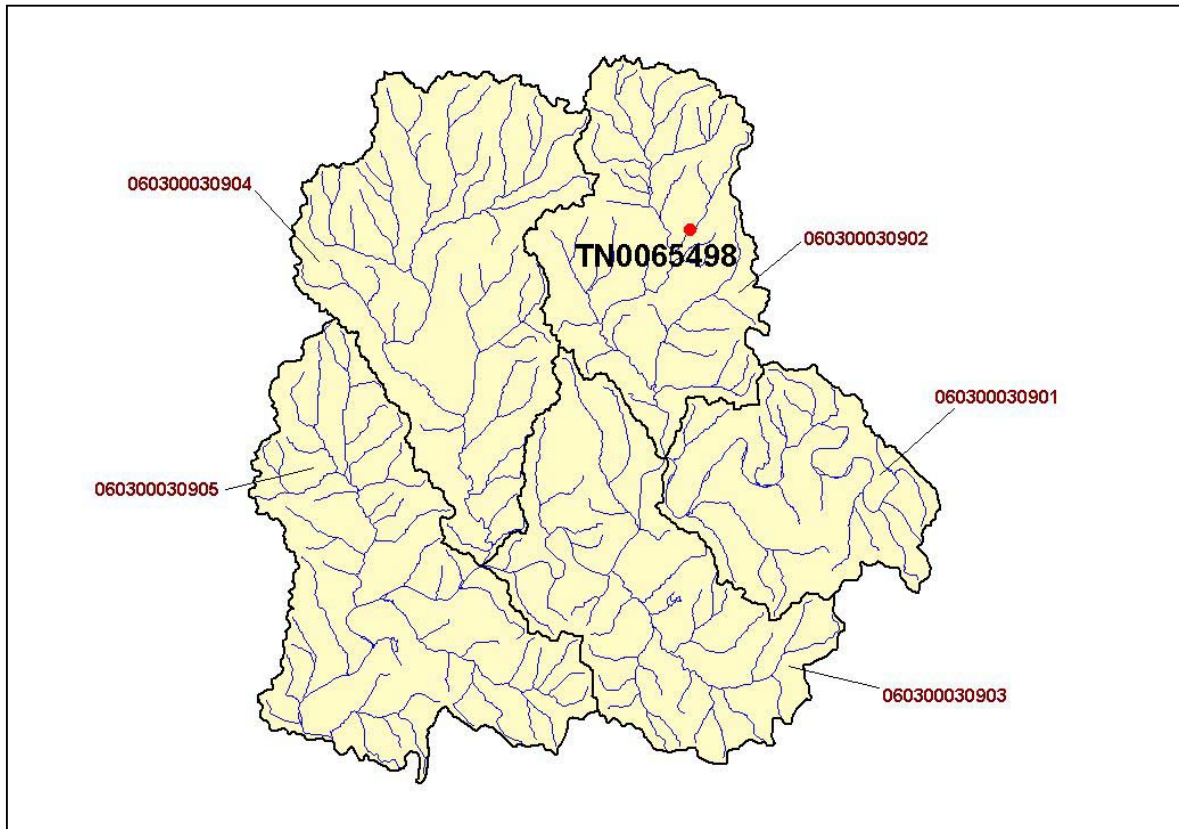
**Figure 4-102. Location of ARAP Sites (Individual Permits) in Subwatershed 0603000309.** Subwatershed 060300030901, 060300030902, 060300030903, 060300030904, and 060300030905 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper El-Appendix IV.



**4.2.G.ii.a. Dischargers to Water Bodies Listed on the 1998 303(d) List**

There is one NPDES facility discharging to water bodies listed on the 1998 303(d) list in Subwatershed 0603000309:

- TN0065498 (Unity Junior High School) discharges to Morton Branch @ RM 1.0



**Figure 4-103. Location of NPDES Dischargers to Water Bodies Listed on the 1998 303(d) List in Subwatershed 0603000309.** Subwatershed 060300030901, 060300030902, 060300030903, 060300030904, and 060300030905 boundaries are shown for reference. More information, including the names of facilities, is provided in Upper Elk-Appendix IV.

PERMIT #	1Q10	3Q10	7Q10	3Q20	QDESIGN
TN0065498			0.00		0.0072

**Table 4-57. Receiving Stream Flow Information for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 0603000309.** Data are in million gallons per day (MGD). Data were obtained from the USGS publication *Flow Duration and Low Flows of Tennessee Streams Through 1992* or from permit files.

PERMIT #	E. Coli	CBOD <sub>5</sub>	pH	NH <sub>3</sub>	TRC	DO	TSS
TN0065498	X	X	X	X	X	X	X

**Table 4-58. Parameters Monitored for Daily Maximum Limits for NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 0603000309.** TCR, Total Residual Chlorine; TSS, Total Suspended Solids.

PERMIT #	Flow	FECAL COLIFORM
TN0065498	X	X

**Table 4-59. Parameters Monitored by NPDES Dischargers to Waterbodies Listed on the 1998 303(d) List in Subwatershed 0603000309.**

**4.2.G.iii. Nonpoint Source Contributions.**

<b>LIVESTOCK (COUNTS)</b>						
Beef Cow	Cattle	Milk Cow	Chickens	Chickens Sold	Hogs	Sheep
20,456	43,843	2,406	49	1,508,236	4,425	260

**Table 4-60. Summary of Livestock Count Estimates in Subwatershed 0603000309.** According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

County	<b>INVENTORY</b>		<b>REMOVAL RATE</b>	
	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Giles	171.8	171.8	3.3	11.4
Lincoln	136.7	136.7	1.1	3.2
Totals	308.5	308.5	4.4	14.6

**Table 4-61. Forest Acreage and Average Removal Rates (1987-1994) in Subwatershed 0603000309.**

CROPS	TONS/ACRE/YEAR
Grass (Hayland)	0.22
Legume (Hayland)	0.14
Legume/Grass (Hayland)	0.36
Grass (Pastureland)	1.09
Grass, Forbs, Legumes (Mixed Pasture)	0.89
Forest Land (Grazed)	0.00
Forest Land (Not Grazed)	0.00
Corn (Row Crops)	4.05
Soybeans (Row Crops)	5.89
Tobacco (Row Crops)	9.27
Potatoes (Row Crops)	3.04
All Other Row Crops	2.70
Conservation Reserve Program Land	0.27
Wheat (Close Grown Cropland)	3.02
Barley (Close Grown Cropland)	1.08
Fruit (Horticultural)	0.09
Other Vegetable and Truck Crops	3.09
Summer Fallow (Other Cropland)	1.21
Other Cropland not Planted	0.25
Other Land in Farms	0.27
Nonagricultural Land Use	0.00
Farmsteads and Ranch Headquarters	0.31

**Table 4-62. Annual Estimated Total Soil Loss in Subwatershed 0603000309.**